

## ESG Economic Validation

# Quantifying the Economic and Operational Benefits of the N2WS Backup and Restore Solution

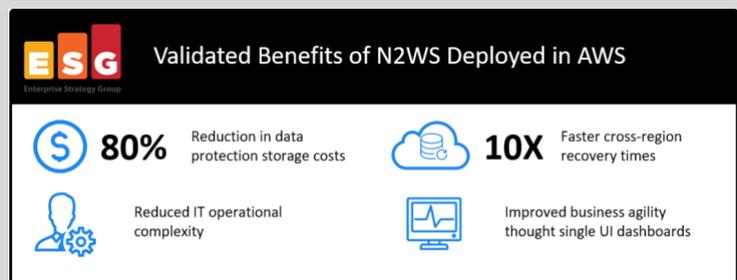
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### Executive Summary

Effectively executing, managing, and restoring data from backups in public cloud environments are difficult tasks. IT teams struggle with the complexity of using backup solutions designed for on-premises environments that are “shoe-horned” into public cloud deployments.

ESG validated that N2WS delivers the enterprise-grade data protection features and performance that organizations are looking for to support their AWS production environments and cloud-native applications. N2WS delivers a combination of features organizations need, such as file-level

recovery, next-generation backup services, near-zero RTO restore, disaster recovery protection, and backup data management, while managing AWS resources effectively to reduce costs. ESG confirmed that when compared to AWS native snapshot only, and other competitive solutions, N2WS customers have seen significant gains in productivity and resiliency, while reducing costs by as much as 80%, sometime more depending on customer requirements. N2WS, an application born in the cloud, provides significant quantitative and qualitative advantages. This cloud-delivered data protection service in native AWS formats also helps to ensure that organizations’ data can be completely managed in their existing AWS accounts for added security and compliance.



## Introduction

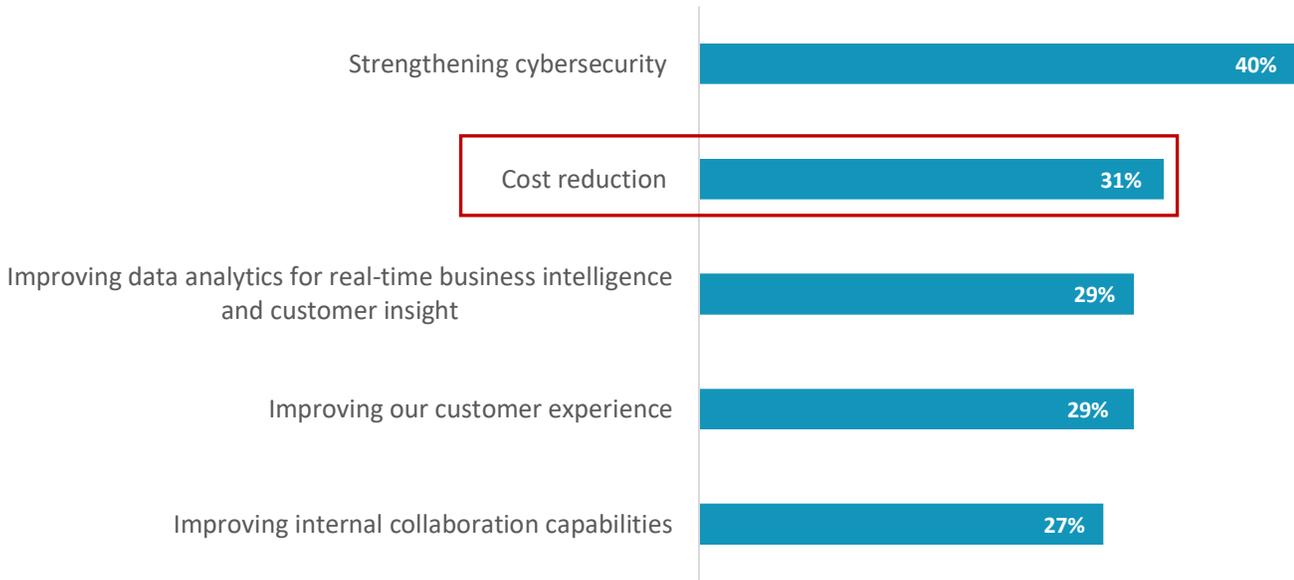
This ESG Economic Validation quantifies the savings and benefits organizations can achieve when utilizing N2WS as their cloud data protection solution to support production AWS environments. ESG audited N2WS cost model metrics and leveraged a scenario that factored in all the pertinent costs of a typical data protection schema over a three-year period.

## Background

In ESG’s 2020 Technology Spending Intentions Survey, we asked respondents about the business initiatives they expected would drive the most technology spending at their organizations in 2020. As shown in Figure 1, 31% of the respondents identified reducing costs as one of the major drivers of increased technology spending for their organizations. ESG research also found that the majority, 94% of surveyed organizations, are currently using public cloud computing services.<sup>1</sup> What’s behind this drive to the cloud? For many, the cloud is an attractive option for reducing the cost of owning and managing physical resources.

**Figure 1. Top Five Business Drivers for Tech Spending**

**Which of the following business initiatives do you believe will drive the most technology spending in your organization over the next 12 months? (Percent of respondents, N=658, five responses accepted)**



Source: Enterprise Strategy Group

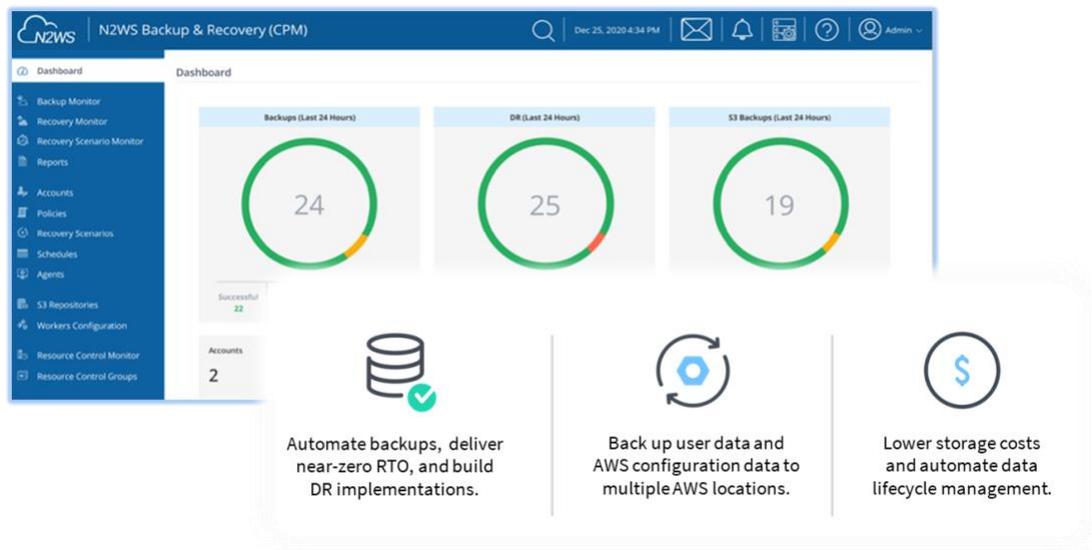
Moving production resources to public clouds such as AWS or developing cloud-native applications are two ways to decrease upfront and operational costs. However, entry-level cloud computing cost is only part of the story. Equally important is how an organization engineers data protection of its AWS production environment for maximum performance and reduced RTO at the lowest possible cost. AWS offers the tiering infrastructure needed with high performance EBS storage, lower cost and lower performance S3 storage, and even lower cost Glacier archiving storage. But effectively managing data protection is a challenge with just AWS native tools, especially for organizations accustomed to feature-rich, enterprise-level backup software.

<sup>1</sup> Source: ESG Research Report, [2020 Spending Intentions Survey](#), February 2020.

## N2WS Solution

N2WS is a powerful cloud-native application, built to easily integrate into any organization's AWS production environment, that enables enterprise-level backup and recovery capabilities. It is scalable to petabytes of protection with no scripting required and can be used to orchestrate disaster recovery scenarios across AWS regions and accounts. Quick recovery from data outages or system failures can be easily managed through a single user-friendly console.

**Figure 2. N2WS Benefits Overview**



Source: Enterprise Strategy Group

Leveraging nearly 10 years of experience delivering backup and recovery solutions on AWS, N2WS has meticulously innovated alongside AWS services as they have matured over the past few years. This feature-rich, cloud-native application has many clear cloud advantages over solutions designed as enterprise-first applications. Today N2WS supports over 1,000 customers and 100,000+ instances. Its Backup and Recovery solution delivers core features, including:

- **Made for the AWS Cloud.** N2WS is hosted in a customer's AWS account and gives the organization complete control over its data protection all from within its own AWS cloud. The single administrator interface includes full management support across AWS regions.
- **Agile Data Management.** Data is easily and efficiently transferred between different regions, accounts, and storage tiers for cost-efficient data lifecycle management. This includes orchestration for managing the lifecycle of aging data across EBS, S3, and Glacier storage.
- **Efficient Disaster Recovery.** N2WS delivers 1-click disaster recovery, allowing organizations to recover synchronized data in less than 60 seconds from most data loss incidents, whether they involve a single file or the full environment. This function helps customers meet the most stringent recovery time objectives (RTOs), uptime requirements, and compliance and corporate governance objectives.
- **Broad Support.** N2WS provides broad support for integration with any production environment on AWS. This includes environments with Amazon EC2, Amazon EBS, Amazon RDS, Amazon Redshift, Amazon Dynamo DB, Amazon EFS, Amazon FSx, and Amazon S3.

## ESG Economic Validation

ESG completed a quantitative and qualitative economic analysis of N2WS as a backup and recovery solution for AWS production environments. Testing focused on the economic benefits organizations can expect when leveraging N2WS compared with manually managing discrete AWS features such as snapshots, EBS, S3, and Glacier to build a backup solution. This was further compared to other competitive solutions not developed as cloud-first applications.

ESG's Economic Validation process is a proven method for understanding, validating, quantifying, and modeling the economic value propositions of a product or solution. The process leverages ESG's core competencies in market and industry analysis, forward-looking research, and technical/economic validation. ESG conducted in-depth interviews to better understand and quantify how N2WS impacts organizations, particularly in comparison with previously deployed and/or experienced solutions. The qualitative and quantitative findings were used as the basis for a simple economic model comparing the expected costs of operating without N2WS to the cost reductions and benefits of deploying N2WS to orchestrate backup and restore.

### Economic Value Overview

In the age of digital transformation, downtime can spell disaster to an organization's bottom line. Public clouds like AWS are rapidly growing in popularity and in adoption, yet it has become even more difficult to maintain 24/7 uptime for applications and data. ESG's economic analysis revealed that an effective deployment of N2WS can provide significant cost, administration, and agility benefits. Additionally, with N2WS, organizations can recover faster from any type of outage and meet even the most stringent compliance requirements, RTOs, and uptime objectives.

ESG found that N2WS provided its customers with significant savings and benefits in the following categories:

- **Lower Cost** – ESG validated a significant cost reduction when N2WS is enabled in an AWS environment to orchestrate an organization's backup and restore process.
- **Efficient Recovery** – Meeting corporate governance and compliance requirements for data backup and restore are key necessities when operating in the cloud. ESG validated N2WS's ability to meet these stringent requirements.
- **Tight Integration with AWS** – Ubiquitous integration with all AWS tools running in a production environment are standard practice with N2WS while other enterprise-first applications struggle when running in the cloud.



#### Lower Cost

Lowering operational costs moves capital from an expense to an opportunity. DevOps can focus less time on day-to-day backup and restore tasks and spend more time on initiatives aligned with business objectives.

By implementing N2WS on AWS for backup and restore, an organization is orchestrating a lifecycle management process that automates the transfer of Amazon EBS snapshots to Amazon S3 or Glacier/Deep Archive for long-term retention and cost savings.

With N2WS "Zero EBS" feature, Amazon EBS snapshots can be automated for deletion as they are written to S3 to reduce the high cost of storage resources when they are not needed and remove data at its end of life.

**“It allowed us to save over \$1M in the management of EBS snapshots over a 2-year period”**

This efficient end-to-end automation process can help lower operational costs and is all managed through a single console. Within the console, an administrator can use Cost Explorer to monitor EBS backup spending and see real-time cost savings to benchmark success. Organizations also maintain control of costs and systems since N2WS is deployed on a single EC2 server running in the organization's AWS account. N2WS customers have avoided the "AWS bill shock" by automatically deleting old snapshots, saving 75% or more in long-term retention costs, and turning off non-critical instances with Resource Control Manager found in the console. In addition to the reduction in storage costs, staff hours to manage and administer backup as well as restore processes are dramatically reduced and resources can be better utilized to meet business objectives with assurances that valuable corporate data is being protected and is easily accessible when needed.



### Efficient Recovery

Whether an organization needs to restore a single file, folder, or volume in one region or across regions, minutes can seem like hours and any downtime is unacceptable in today's world. The cost of downtime is measured in dollars, customer satisfaction, lost revenues, and damage to an organization's reputation. These events can be the result of simple miscalculations or malicious ransomware attacks. Regardless, organizations must strive for zero downtime on production systems and for that, need reliable backup with fast recovery. N2WS is integrated into the AWS framework and workflow to enable near-zero recovery time with management of all regions and locations through a single management console. One advanced feature is the ability to create disaster recovery sites with cross-account recoverability for added security, in any worldwide AWS region. Recovery scenarios can be used to orchestrate and test recovery of an entire application or service. Organizations can preconfigure a set of resources, define order of recovery, and bring workloads back in seconds. Dry runs can be scheduled to improve DR planning and check for potential issues.

**"10 times faster  
cross-region recovery on  
hundreds of EC2 instances.  
With full environments  
recovery going from 2  
days to 2 hours"**

Some of the most notable features of efficient recovery include:

- **Automated backups** - Flexible policies and schedules are used to configure what to back up, define targets, and set frequency and retention periods.
- **File-level recovery** - Restore single files or folders without having to recover the full volume.
- **Recover in 60 seconds** - One click to recover a single file or full restore with near-zero RTO.
- **Disaster-proof data** - Replicate snapshots to another AWS region or account for advanced data protection.
- **Create recovery scenarios** - Schedule automated DR drills the same way you would schedule a policy.
- **Cross-region backup and disaster recovery** - Keep backups in a separate region for maximum data protection.
- **Cross-account backup and disaster recovery** - Protect your data from account vulnerabilities, like ransomware.
- **Encryption key support** - Custom encryption keys for disaster recovery (DR) can be implemented.

### Why This Matters

Near-zero recovery time from any type of incident that affects data has become one of the highest objectives of many digital organizations. There are too many unknown variables such as ransomware attacks, disgruntled employees, and hacking from known and unknown sources. Full automation and orchestration are needed to eliminate the gaps and protect organizations.

- **Backup and Audit reporting** – Backup reports show key backup metrics and drilldowns by account and/or users while audit reports allow users to see who perform which operations, and crucial information to pass external audits.



### Tightly Integrated with AWS for all Environments

As an AWS cloud-native backup and recovery application, N2WS seamlessly fills in the gaps in the AWS model with flexible policies, automation, application-consistent backups, restful API, and the ability to manage thousands of instances. N2WS Backup and Recovery plugs into an organization's existing AWS environment and accounts to easily manage, protect, and archive all critical and non-critical data.

N2WS deployment starts by creating a single EC2 server in the organization's account where the N2WS application will run. This dedicated server includes the management console along with APIs and plugins to connect with production storage resources as well as EC2 instances. Serverless and NoSQL workloads can also be enabled to ensure full coverage of all data that needs protection. Using the management console, IT can create flexible backup policies and schedules for each AWS workload. The single management console can connect to resources across AWS regions and customer-owned accounts to create a single management interface. For each workload, lifecycle management policies with recovery orchestration can be established. AWS snapshots are used to collect the data and N2WS then moves it through a predefined process, including zero snapshots, where the data is moved immediately to S3 or even Glacier in order to eliminate the high cost of block snapshots. Policies define how long data will stay on high cost EBS before moving to S3 and eventually Glacier. N2WS can be configured to operate based on an organization's data governance policies, as well as data protection standards and privacy regulations such as GDPR.

When it comes time for recovery, IT can access the management console and recover any file, folder, or volume with near-zero RTO for snapshot or synchronized data. This is because of the predefined automated policies and orchestration. Other advanced functions provide the ability to create a disaster recovery site in a new AWS region in minutes or using cloning to replicate data to an environment for test and development work.

*“With N2WS, backup is no longer a nightmare (like it was in our on-premises datacenter). In fact, it's one of the easiest items to tackle”*

N2WS performs application-consistent backups without taking systems offline, with support for MySQL, MongoDB, PostgreSQL, SQL Server, Exchange, Active Directory, SharePoint, and SAP.

The tight integration with AWS allows organizations to have a seamless and worry-free backup and recovery cloud experience that gives IT resources confidence that data is protected, and recovery will be fast.



### Why This Matters

N2WS eliminates the need for custom scripting, which has many challenges, including these critical downfalls: lack of centralization and single management console, limited ability to maintain policies, difficult cross-region disaster recovery, no easy method of cloning VPC settings, and poor RTO due to manual orchestration of the restore process.

## ESG Economic Analysis

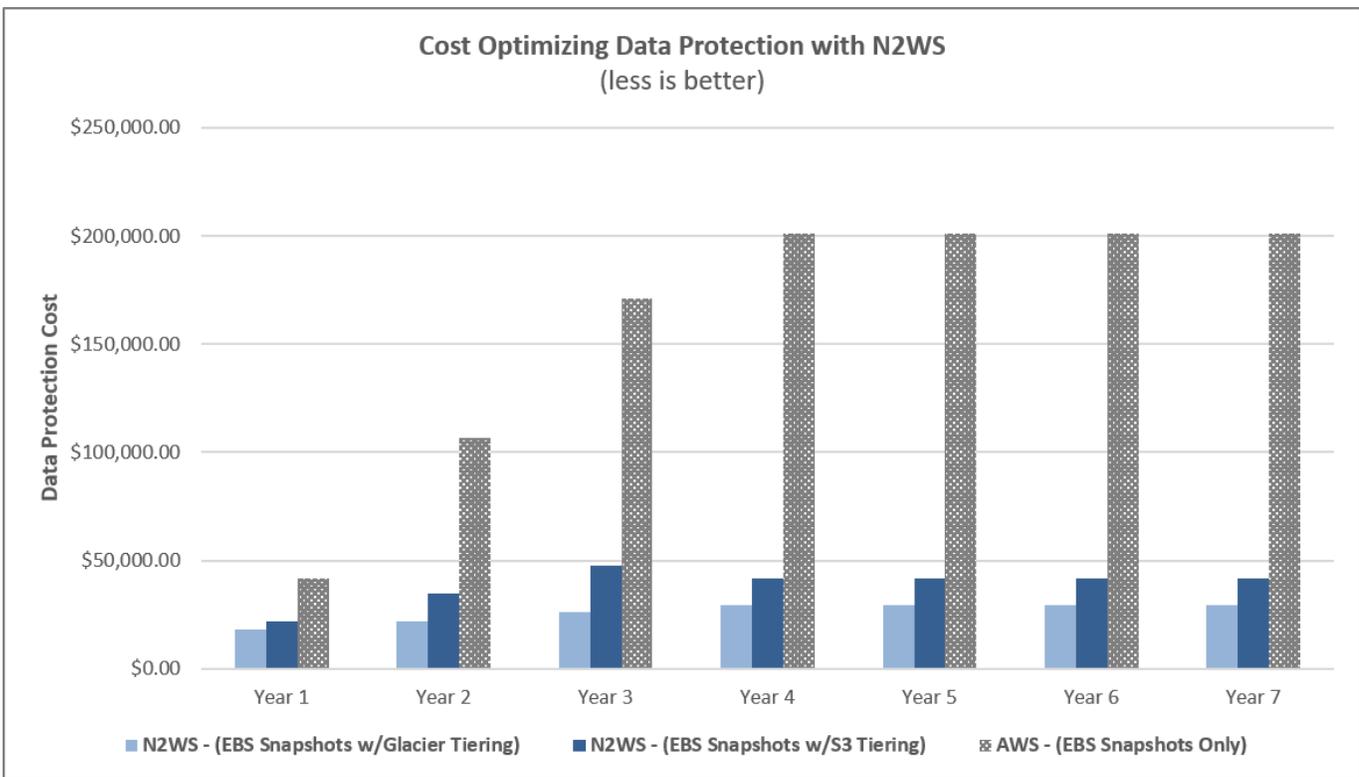
In order to validate the quantitative and qualitative cost savings of N2WS Backup and Recovery, ESG leveraged economic TCO-modeled scenarios of N2WS when deployed in a typical AWS customer environment. In the modeled scenario, the organization runs a production environment in its AWS account. N2WS is deployed on a new EC2 server, sized to support the test environment of 20 TB of production data to be backed up. Once deployed, customers have access to their N2WS

dashboard, where configurations are set to interface with the production environment and retrieve daily AWS snapshots of the production data. From this point, the process of establishing lifecycle management policies on the data being captured is clear and intuitive. Any organization can easily apply its rules and requirements in a matter of minutes.

The economic model, as shown in Figure 3, looked at the cost differences for a customer starting out on AWS with 20TB of storage. The model looks at the cost over seven years of a customer running backups on EBS storage only, compared to utilizing N2WS to efficiently optimize the process with either S3 or Glacier. For both S3 and Glacier, one EBS snapshot is included in the scenario, even though N2WS can offer zero snapshots, where data is almost immediately transferred to S3 or Glacier. Other assumptions include backup retention for 3 years, a daily data change rate of 3%, compression ratio of 80%, and the costs of data transfer.

The seven-year model demonstrates the annual cost growth over the first three years using monthly backups, to reach a steady cost state in year four. Depending on the organization’s corporate data governance requirements, it may need to keep backup data more accessible on S3, or, if it is kept more for archiving purposes, utilizing Glacier at a lower cost is more advantageous. Keeping data strictly on EBS without implementing a tool such as N2WS demonstrates a major expense that can be avoided.

**Figure 3. ESG Financial Model Analysis**



Source: Enterprise Strategy Group

Table 1 shows the cost breakdown of each scenario shown in the bar chart in Figure 3. The cost for EBS only for seven years is \$1,123,500, compared to the cost for the Glacier option with one EBS snapshot at just \$185,257, a savings of \$938,243 and a difference of 83.5%. Similarly, utilizing S3 results in a cost savings of \$851,495 and a difference of 75.7%. Keeping backup data on EBS is not cost-effective for an organization, which is one of the biggest qualitative advantages of N2WS as a policy-driven alternative that can predict costs using its Cost Calculator in the dashboard. The cost of N2WS Enterprise edition is a flat rate of \$999 per month. Considering the cost savings and N2WS cost, this results in a very high return on investment as shown in the last column of Table 1.

**Table 1. 7-Year Cost and ROI Comparison**

Storage Configuration	7-year Backup Cost	7-year Cost Savings versus EBS Only	Percent Savings	ROI Calculation
EBS Snapshots Only	\$1, 123,500			
S3 with 1 EBS Snapshot	\$272,005	\$851,495	75.7%	1128%
Glacier with 1 EBS Snapshot	\$185,257	\$938,243	83.5%	1329%

Source: Enterprise Strategy Group

Using N2WS, organizations can see an immediate cost saving beginning in the first months. During year 1, as the organization is starting to protect its data for the first time, there is a cost savings of \$19,745 with S3 and \$23,575 using Glacier. Some customers will want to choose S3 or Glacier with a single EBS snapshot over "Zero EBS" since it allows them a zero-RTO when recovering data from the latest backup. Recovering from S3/Glacier can take much longer than recovering from EBS.

To enhance this, N2WS data can live in different AWS regions and act as a disaster recovery solution as well as a backup feature. The N2WS cost itself ends up being lower than 10% of the total reduced cost, making it an extremely cost-effective and powerful solution that can dramatically drive down overall backup and recovery cost on AWS and additionally help organizations avoid the high cost of a slow data recovery.

On the qualitative side, ESG observed the ease and speed of deploying N2WS, executing backups for all entities in an AWS account, achieving improved RTOs, and configuring backup data lifecycle management policies. With N2WS, organizations can:

- Create agentless AWS-native backups stored in a non-proprietary format in their AWS accounts.
- Build flexible backup policies and schedules with custom retention and data lifecycles, including archiving to lower cost Amazon S3 storage tiers.
- Deliver rapid and flexible recovery of instances, data volumes, individual files and folders, and entire applications with near-zero recovery time objective (RTO).
- Automate disaster recovery across AWS Regions and AWS accounts to protect them from failures and malicious attacks.

## The Bigger Truth

Executing backups, delivering fast restorations, implementing disaster recovery plans, and managing backup data assets are all historical IT team challenges. ESG found that N2WS empowers enterprises to manage storage and infrastructure, orchestrate recovery of critical resources, and archive data for compliance, all from one user interface, while driving down the cost of backup on AWS through orchestrated lifecycle management. ESG research notes that almost two-thirds (64%) of respondents believe that their IT environment is more complex than it was 2 years prior<sup>2</sup> as more organizations are moving to cloud computing.

ESG believes the business justification for an N2WS investment is clear: N2WS delivers AWS cloud backup and recovery quickly and cost-efficiently with automation features that expand your capabilities without adding effort or risk. Building and delivering your backup data protection services with N2WS helps ensure resiliency and compliance in AWS Cloud deployments. From backup policies, fast restorations, and comprehensive backup data management to disaster recovery, N2WS backup automation enables you to adhere to the AWS shared responsibility model. N2WS does not just save you money, it frees up valuable time for innovation. If you are using AWS, ESG highly recommends evaluating N2WS for your data protection needs. Free trials are available in the AWS marketplace.

<sup>2</sup> Source: ESG Research Report, [2020 Spending Intentions Survey](#), February 2020.

Also, the economic findings presented in this paper are based on the AWS test environment detailed in the ESG Economics Analysis section of the paper. If you would like to assess the economic impact of the solution based on your actual environment, N2WS has created a cost savings calculator and made it available on their website.<sup>3</sup>

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<sup>3</sup> N2WS – AWS Cost Savings Calculator Tool, <https://n2ws.com/aws-cost-savings-calculator>