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The Benefits of Reducing Operational and Business Risk by Running Windows Workloads in the AWS Cloud

SITUATION OVERVIEW

AWS has been providing cloud services longer than any other cloud service provider and continues to be a cloud destination of choice for organizations undergoing modernization and digital transformation. A decision to move business-critical assets to the cloud requires detailed planning, an awareness of the current environment, and strategic alignment with where the business is headed in the future. In the early days of cloud migration, businesses were mainly focused on anticipated IT cost savings coming from reduced capital investment in supporting infrastructure. As the business reaches higher levels of cloud maturity, they experience improved performance resulting from greater efficiency, speed, flexibility, and superior security.

While cost is always an important consideration, the improved data security, business agility, and simplification of the overall IT landscape afforded by AWS are the most frequently cited drivers of cloud workload migration. Not only do businesses benefit from the added convenience and significant cost savings compared to running these workloads in their own data centers but running Windows workloads in the cloud enables IT organizations to rapidly deliver new services to the business that result in better customer and employee service experiences.

Importantly, organizations interviewed for IDC's research reported significantly reducing operational and business risk related to the Windows workloads they are running in the AWS cloud. They explained that they have achieved more robust security for these workloads by leveraging AWS's security-related functionality. Further, they have not only reduced the cost of risk measured by lost productivity for users of Windows applications by minimizing the frequency and impact of unplanned outages, but also lowered their overall risk profile in terms of potentially very impactful business and reputational losses.

OVERVIEW OF WINDOWS WORKLOADS ON AMAZON WEB SERVICES

Windows workloads continue to be the foundation of most organizations. Business-critical workloads like SQL Server, Windows Server, .NET Solutions, and Active Directory require higher levels of security to protect sensitive customer data. Having a robust and secure infrastructure is essential for these types of workloads. The applications and data included in these workloads are accessed frequently by large numbers of users across business domains and must be consistently available wherever and whenever needed. In 2008, AWS launched a portfolio of services designed to support many Windows workloads.

Businesses can choose from a wide variety of virtual server instance types, each with different performance characteristics across compute, networking, memory, and storage. There are different licensing options to help businesses optimize the cost of running Windows workloads on the AWS cloud, including purchasing licenses from AWS with consumption pricing, and “bring your own license”. AWS also provides pre-configured Amazon Machine Images (AMIs), with different versions of Microsoft software licenses included, such as Windows Server and SQL Server.

For database workloads, businesses can use Amazon Elastic Compute Cloud (EC2) and Amazon Elastic Block Store (EBS) to run their SQL Server instances. Businesses can also use Amazon Relational Database Service (RDS) to run their SQL Server databases as a managed service.

THE BUSINESS VALUE OF WINDOWS WORKLOADS ON AWS

Study Demographics

IDC conducted in-depth interviews with 12 organizations that are running various Windows workloads, including enterprise application workloads, database workloads, and custom applications, in the AWS cloud. Interviews were designed to understand the impact for these organizations of running these Windows workloads on AWS compared with their previous IT infrastructure environments. On average, interviewed organizations were large, with more than 28,000 employees and almost \$5 billion per year in revenue. They provided insights from a variety of industry verticals, including the Food & Beverage, Government, Healthcare (3), Higher Education, Manufacturing (2), Retail, Telecommunications, Transportation (2) vertical sectors (See Table 1 for additional details).

TABLE 1 Demographics of Interviewed Organizations

	Average	Median
Number of employees	28,579	6,750
Number of IT staff	1,581	250
Number of business applications	149	150
Revenue per year	\$4.65 billion	\$1.5 billion
Country	United States	
Industries	Food and beverage, government, healthcare (3), higher education, manufacturing (2), retail, telecommunications, transportation (2)	

n=12 Source: IDC, 2019

Choice of AWS for Running Windows Workloads

Most study participants moved Windows to AWS from legacy on-premises environments, although several also migrated systems in part from other public cloud environments. Study participants' reasons for choosing AWS varied, but interviewees returned to themes such as cost, robustness, security, management, and performance. For example, several interviewees explained the choice of AWS:

- Healthcare organization:** *"We needed to get away from our on-premises environment for a variety of reasons - mostly for data security - and we were long overdue for this move because our servers were breaking regularly. AWS gave us the best pricing, and we felt their security measures were more far-reaching."*
- Food and beverage organization:** *"We chose AWS for our Windows workloads because it has a more robust infrastructure, and in the cloud space, it's the outright leader. . . Amazon won out because of their breadth of services, security minded configurations, number of datacenters, and built-in redundancy."*

As shown in Table 2, study participants have moved significant Windows workloads to the Amazon cloud, using 112 AWS EC2 server instances on average and spending almost \$1 million per year. These organizations reported running diverse Windows workloads on AWS, including collaboration, database, analytics, enterprise resource, and custom applications.

TABLE 2 AWS Use by Interviewed Organizations

	Average	Range
Spend per year on AWS	\$976,300	\$235,000
Number of Amazon EC2 server instances (average)	112	13
Number of Amazon EC2 instances for SQL	27	9
Number of Amazon RDS databases	38	7
Number of terabytes	133	25
Number of applications	43	5
Number of internal IT users	4,185	2,500

n=12 Source: IDC, 2019

Quantifying Benefits Related to Risk Mitigation from Running Windows Workloads on AWS

IDC's research demonstrates that, by moving Windows workloads to AWS, study participants minimize the operational impact of unplanned application outages and reduce their overall exposure to risk related to these workloads. As a result, IDC calculates that they will realize higher user productivity worth an average of \$18,400 per 100 users per year (\$0.77 million per organization). These benefits relate primarily to reducing the cost of lost user productivity related to unplanned outages, but also include more limited quantified benefits tied to revenue losses avoided and regulatory compliance team productivity gains. Additionally, organizations see less quantifiable benefits from reducing the likelihood of experiencing significant outages or breaches that could impact their core business operations and reputations.

Risk Mitigation: User Productivity Benefits

Study participants have benefited from running Windows workloads on AWS in terms of security, reliability, and performance. Overall, this reflects these organizations achieving an important reduction in operational and business risk related to reputation, business continuity, and ability to meet fast-changing business conditions. Interviewed organizations cited specific ways in which running Windows workloads in the AWS cloud has enabled them to improve their security and limit their exposure to risk:

- Improved security posture:** Study participants have increased the efficiency of their security teams by moving Windows workloads to AWS and leveraging AWS platform functionality (59% on average, value quantified as an IT staff productivity benefit for purposes of the overall study). More importantly, they reported better positioning

their businesses in terms of security and reducing security-related risk with AWS. A telecommunications organization explained: *“We’re seeing strong gains with AWS in security because it was becoming problematic for us. With AWS, we’re delivering higher levels of protection, and added in vulnerability scans.”*

- Increased reliability:** Study participants have significantly reduced the impact of unplanned outages on their employees and businesses by running Windows workloads on AWS. On average, as shown in Table 3, they have reduced the amount of productive time lost per user of Windows applications from nearly five hours to under ten minutes per year. A government organization commented: *“Being on AWS has been a drastic change for us in terms of user accessibility for Windows workloads, because we had major issues before with [our legacy environment]. . . Automated failover is key – AWS does it flawlessly without us noticing.”* This means that employees experience fewer interruptions as they do their work and businesses can operate with less risk of impactful outages.
- Better performance:** Interviewed organizations have also benefited from improved performance of Windows workloads running on AWS. Users benefit from improved performance of applications (19%) and database (18%), both of which contribute to higher internal satisfaction with IT performance (31% higher). While the benefits of improved performance were largely quantified as business-related gains for purposes of this study, these gains also help ensure that study participants’ IT organizations can provide their businesses with requisite tools and functionality, thus bringing down the likelihood of IT creating friction for day-to-day business operations.

TABLE 3 Impact on Unplanned Downtime

	Previous Environment	With Windows on AWS	Difference	Change (%)
Unplanned outages per year per organization	16.0	3.0	13	82
Mean time to recover (MTTR) (hours)	2.7	0.5	2.2	82
Lost productivity per year per user (hours)	4.7	0.1	4.6	98
FTE impact (lost user productivity per year)	10.5	0.2	10.3	98

n=12 Source: IDC, 2019

CONCLUSION

Windows workloads remain business-critical for most organizations and thus require a robust and secure infrastructure. Meanwhile, users of these applications have increasing expectations regarding performance, functionality, and mobile access, while continued data growth and high user experience expectations has put pressure on IT costs and staffing requirements. These combined trends have spurred IT organizations to look at new approaches to delivering Windows workloads, including running them in the public cloud. While early cloud migrators were driven largely by IT cost savings through moving away from on-premises infrastructures, organizations increasingly understand that cloud can deliver even more value through efficiencies, performance, agility, and security.

IDC's study demonstrates the strong value that interviewed organizations are achieving by migrating and running substantial Windows workloads in the AWS cloud. These AWS customers reported not only reducing the cost of running their Windows applications, but also capturing significant value through enabling their IT and business operations with efficiencies, flexibility, and improved performance. Importantly, they described lowering operational and business risk through improved reliability, strong performance, and enhanced security. This minimizes the risk profile for their growing businesses that continue to rely on these Windows applications and reduces both the quantifiable and less tangible costs related to risk for these Windows workloads.

For the full IDC report, visit this [page](#).

APPENDIX: METHODOLOGY

IDC's standard ROI methodology was utilized for this project. This methodology is based on gathering data from organizations currently using AWS to run Windows workloads as the foundation for the model. Based on interviews with these study participants, IDC performs a three-step process to calculate the ROI and payback period:

- Measure the benefits associated with using AWS for Windows workloads in terms of: infrastructure-related cost savings, IT staff efficiency and productivity benefits, higher user productivity, and increased revenue.
- Ascertain the investment made in deploying and using AWS.
- Project the costs and benefits over a five-year period and calculate the ROI and payback for AWS.

IDC bases the payback period and ROI calculations on a number of assumptions, which are summarized as follows:

- Time values are multiplied by burdened salary (salary + 28% for benefits and overhead) to quantify efficiency and manager productivity savings. For purposes of this analysis, IDC has used its standard Business Value assumptions of an average fully-loaded \$100,000 per year salary for IT staff members, and an average fully-loaded salary of \$70,000 for non-IT staff members. IDC assumes that employees work 1,880 hours per year (47 weeks x 40 hours).
- Downtime values are a product of the number of hours of downtime multiplied by the number of users affected.
- The impact of unplanned downtime is quantified in terms of impaired end-user productivity and lost revenue.
- Lost productivity is a product of downtime multiplied by burdened salary.
- The net present value of the five-year savings is calculated by subtracting the amount that would have been realized by investing the original sum in an instrument yielding a 12% return to allow for the missed opportunity cost. This accounts for both the assumed cost of money and the assumed rate of return.
- Because every hour of downtime does not equate to a lost hour of productivity or revenue generation, IDC attributes only a fraction of the result to savings. As part of our assessment, we asked each company what fraction of downtime hours to use in calculating productivity savings and the reduction in lost revenue. IDC then taxes the revenue at that rate.
- Further, because IT solutions require a deployment period, the full benefits of use of AWS are not available during deployment. To capture this reality, IDC prorates the benefits on a monthly basis and then subtracts the deployment time from the first-year savings.

Note: All numbers in this document may not be exact due to rounding.

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