

DRIVERS AND IMPEDIMENTS TO DIGITAL TRANSFORMATION: THE RESEARCH 2021

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EXECUTIVE SUMMARY

Businesses have had to adapt greatly in order to keep up with society's continuous technological evolution. With new best practices in place, there is significant pressure to cut costs and simplify operations within businesses' technology sectors. New tech replaces old tech, but the logistics of that transition can be complex and costly; several businesses opt to maintain old technology systems simply because of the perceived effort needed to switch. This mindset is detrimental to long-term growth and leaves companies with immense technology debt: wasted money contributing to inefficient systems.

Businesses have compliance constraints and compounded technology debt. They must carefully handle the legacy technology and associated debt and mitigate compliance, security risk and minimize cost. Their struggle is between the opportunity cost of doing nothing and making a case for investing in transformation.

Platform 3 Solutions and EDB set out to find out just how much technology debt is being accrued by maintaining legacy systems, along with how businesses are addressing this issue.

Platform 3 Solutions and EDB executed market research¹ in August 2020 that resulted in the following findings:

- 'Transformation' was the focus of most companies (67%)
- 'Cloud' was maturing into the mainstream (82%)
- There was significant technology debt across businesses (83%)

With:

- Over 80% of organizations on a calendar fiscal year
- The original research taking place during the trough of COVID-19

During the first 5 months of 2021, global economies showed across-the-board restarts. It follows that the technology status quo for most organizations is still being reset. Consider the following since our research in August 2020:

- Gartner states "**COVID-19 has created an urgent need for organizations to accelerate their digitalization efforts**"², November 6, 2020
- McKinsey and Company discusses "**How COVID-19 has pushed companies over the technology tipping point—and transformed business forever**"³, October 5, 2020
- Forbes writes "**97% Of Executives Say Covid-19 Sped Up Digital Transformation**"⁴, September 10, 2020
- CIO magazine headlines "**The Impact of Covid-19 on Digital Transformation**"⁵, March 12, 2021

¹ <https://platform3solutions.com/driver-impediments-transformation/>

² <https://www.gartner.com/smarterwithgartner/covid-19-accelerates-digital-strategy-initiatives/>

³ <https://www.mckinsey.com/business-functions/strategy-and-corporate-finance/our-insights/how-covid-19-has-pushed-companies-over-the-technology-tipping-point-and-transformed-business-forever>

⁴ <https://www.forbes.com/sites/johnkoetsier/2020/09/10/97-of-executives-say-covid-19-spiced-up-digital-transformation/?sh=7530e2ee4799>

⁵ <https://www.cio.com/article/3611357/the-impact-of-covid-19-on-digital-transformation-in-5-charts.html>

Platform 3 Solutions and EDB executed an incremental research effort to understand what changed between August 2020 and May 2021. Findings include:

- ‘Transformation’ is still a top priority but has given way to ‘cost cutting’.
- ‘Cloud First’ is still progressing—representing now over 80% of all organizations with Azure being a clear winner.
- Technology debt is still a primary issue with over 90% of the responses—and 38% stating it is ‘significant’.
- Old data is a significant issue with over 40% stating over half is of little value.
- When asked to end this sentence— “We are looking to reduce our spend with...” –Oracle stood out with over 50% of all responses.
- Even though one of the primary motivations for ‘cloud’ was ‘easier to provision’ (60%), when organizations were asked how long it takes to provision a new environment, 86% said ‘over 2 weeks.’

This research looks at the corporate desires, motivations, and directions within organizations as they look to reduce their massive technology debt and outdated systems. Striving to better use cloud-based platforms and methodologies, using open-source technology to drive down costs, and creating a more repeatable platforming and operational approach make this all possible.

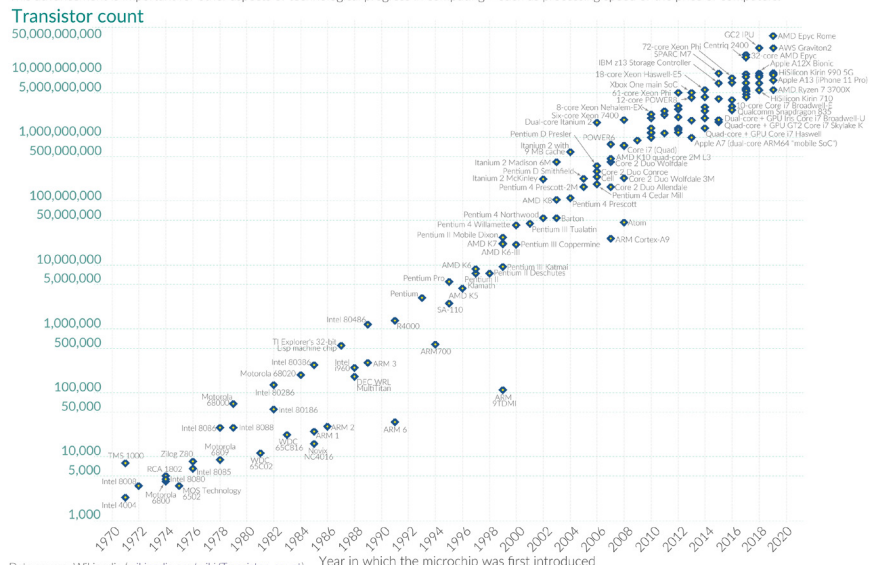
INTRODUCTION

Since Gordon Moore postulated in 1965 that “the number of transistors will double every two years”, the business world has had no problem consuming the dramatic processor improvements that have become reality since. The price of network, memory, storage and compute have dropped while capacity and performance have increased.

A couple of examples:

- **Compute** – April 6, 2021 -Intel introduced its newest data center processor named ‘Ice Lake’⁶. It will have 40 processing cores per chip and bring 50% better performance compared to the previous generation.
- **Storage** – Nimbus Data now ships a 100TB SSD drive (at \$400/TB) to bring performance to size⁷. Where cost is paramount, traditional storage is now up to 18TB drives for <\$40/TB with plans to hit 50 TB drives by 2026⁸.

Moore’s Law: The number of transistors on microchips doubles every two years Our World in Data
 Moore’s law describes the empirical regularity that the number of transistors on integrated circuits doubles approximately every two years. This advancement is important for other aspects of technological progress in computing – such as processing speed or the price of computers.

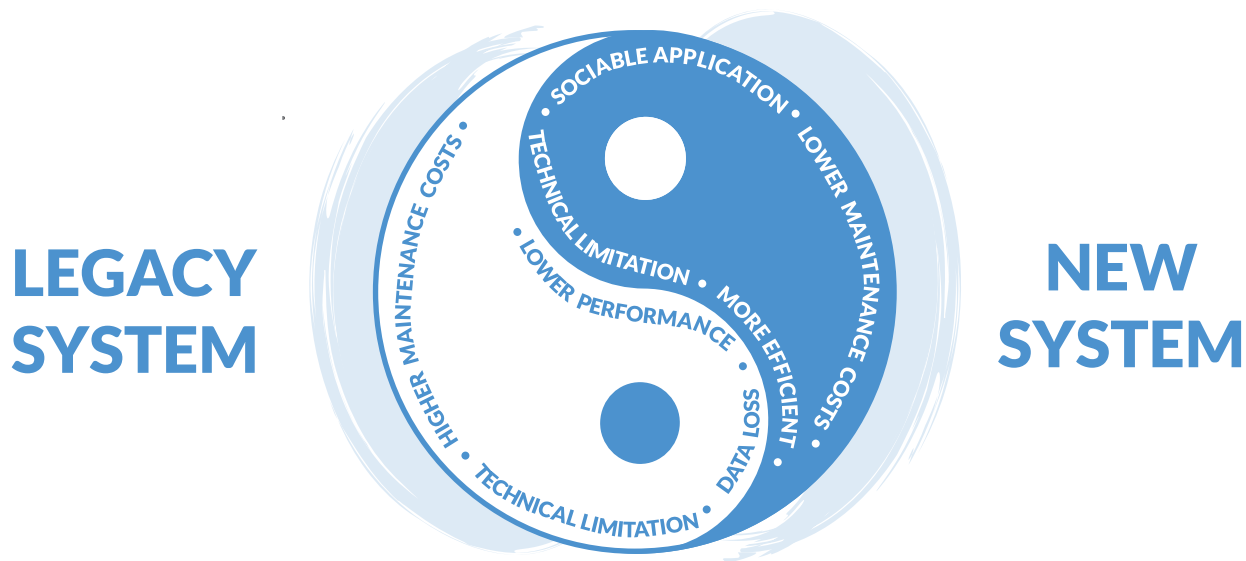


But with all this component acceleration and capacity at less cost, the real challenge is the software and data, and migrating in a way to obtain 'more with less' in total cost of ownership with no added risk.

While hosting, running, and maintaining your own infrastructure used to be the norm, the cost and complexities are at odds with the advent of 'cloud', where organizations can simply subscribe to the services they need.

The combination of on-demand infrastructure, software as services, and un-bridled scale make this 'sharing' of compute and infrastructure appealing for even the most discerning technology consumer.

Finally, the evolution of open-source technologies through all layers of the technology stack are driving down costs, increasing innovation, and allowing companies of all sizes to grow and transform their business.



THE YIN AND YANG OF TRANSFORMATION

This mixed world of legacy technologies and the cloud are causing organizations problems. The legacy systems are engineered to be:

- On premise in a data center
- Upgraded sparsely
- Managed 100% by internal resources
- Utilize legacy middle tier and user experience toolset
- Have a custom, tightly coupled integration layer
- Be highly controlled and secured

While modern, cloud-based technologies specialize with highly specialized services and resources that are designed and configured to be:

- Off premise in a cloud platform
- Upgraded frequently
- Managed and maintained automatically
- Utilize modern technology that bring rich user experiences and transparent mobility
- Utilize open-source integration tools like Kafka, open APIs and iPaaS tools
- Decentralized control and security that created a single 'virtual view' that drives greater security

HYPOTHESIS

The research questions were curated to look closely into the following topics as a combination of motivators and detractors that drive corporate technology change:



- **Cost of the status quo is too high** – the technology debt accumulated by growing maintenance and licensing costs, SMEs, infrastructure, facility costs, etc.
- **Cloud** is the new ‘platform’ with top tiered application being migrated and built outside a brick- and mortar data center.
- **Business Focus** – The lines-of-business want to be empowered by technology and not limited.
- **Open source** is now at that inflection point of being enterprise-ready, driving greater innovation and bringing significant cost savings.
- **Change over time comparing August 2020 to May 2021** – perspectives, drivers, cloud and more.

RESEARCH AUDIENCE AND METHOD

Thousands of technology professionals were asked to participate in a survey, with a focus on the United States. The types and roles of these individuals were not limited by industry but were limited by organization size of over \$500 million in revenues.

The responses were accumulated using a paid-for SurveyMonkey subscription focusing on a mix of questions that span across the topic of change, motivations (or inhibitors) of change and a combination of personal and corporate perspectives. The survey length and ease of answering questions were priorities to limit the estimated completion time to under four minutes.

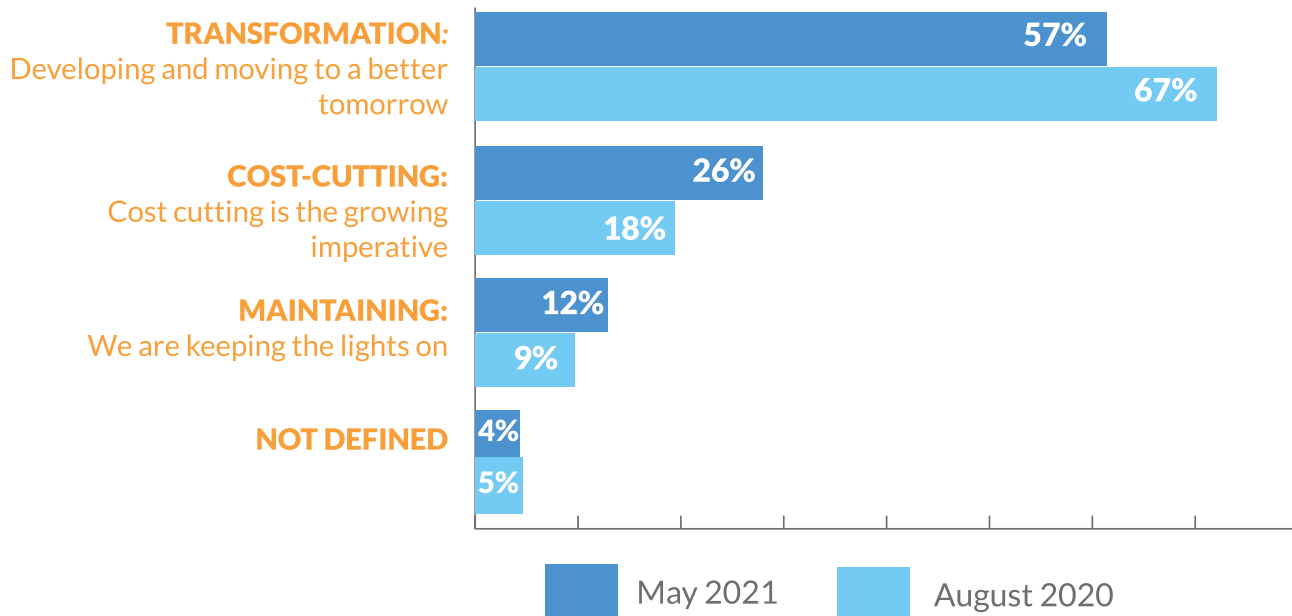
Increasing the number of respondents was done by asking the same questions during a webinar to maximize the population size.

RESEARCH RESULTS

Some questions were worded the same between the previous research (August 2020) and this edition (May 2021). Where applicable, this will be highlighted as we consider the motivations and inhibitors within corporate technology, perspective, history and future.

“What is the priority of your organization at this time?”

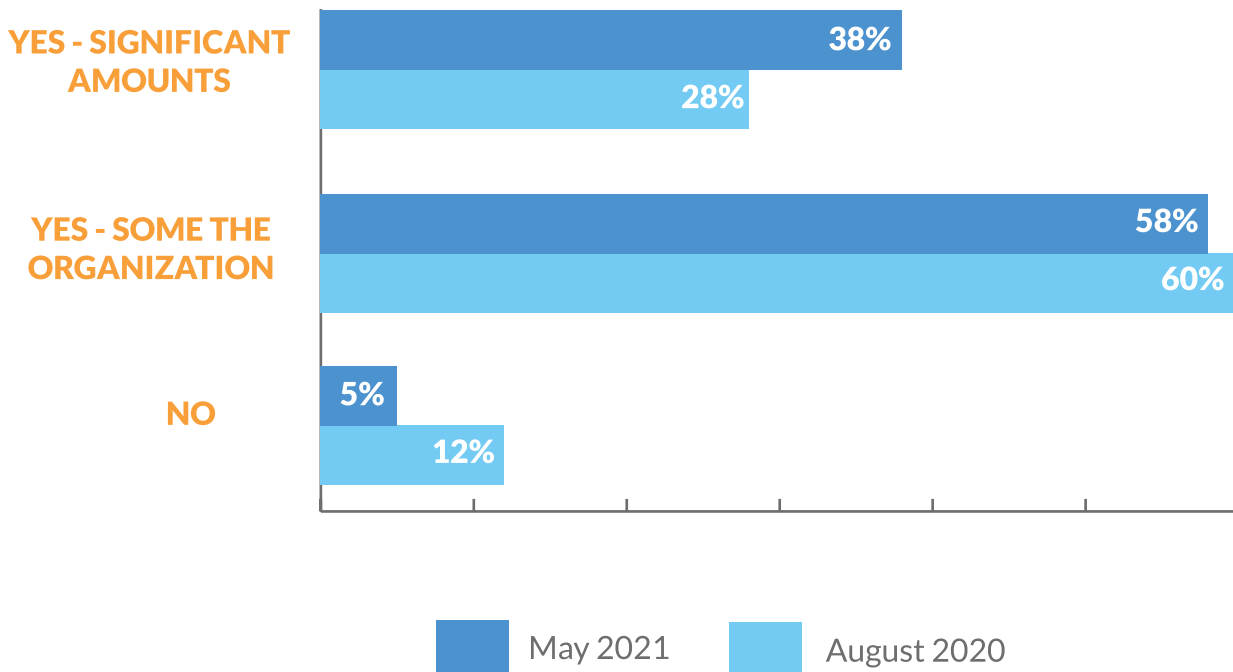
This question was asked previously and answered with a surprising amount of optimism for transformation at 67% and cost cutting at only 18% in August 2020. When readdressed in May 2021, the reality of the impact of the pandemic turned attentions to the need to make up for lost revenues and profits – with cost cutting growing as a priority. It is worth stating that while ‘transformation’ tends to be synonymous with ‘customer first, cloud migration, nimble IT’ there is an undertow where it also includes ‘cost cutting’. In a lot of cases, cloud work is being funded by reducing or ending payments for legacy technology.



Key takeaway: *Cost cutting is the growing imperative.*

“Do you think there is wasted money in keeping old technology alive in your organization?”

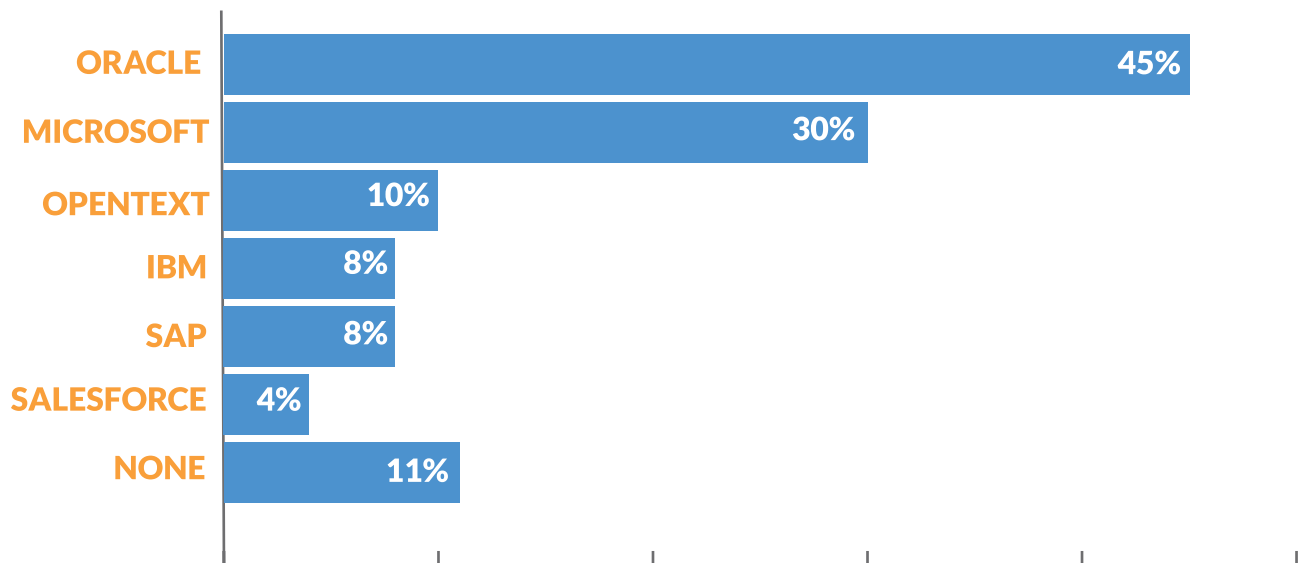
The most striking comparison between August 2020 to May 2021 is the intensity in the answers- organizations don't just have a 'technology debt' problem but have indicated that it is a significant problem (growing to 38%). Just as interestingly, only 5% think they don't have a problem.



Key takeaway: *There is SIGNIFICANT 'Technical Debt' that needs to be reconciled that is hindering forward innovations.*

Please end this sentence: “We are looking to reduce our spending with...”

This multi-choice question allowed participants to share many priorities, but overall Oracle is the primary vendor organizations are looking to remove from their technology stack as quickly as possible. This idea received a lot of press when Amazon stated they were moving all their systems off Oracle, and Larry Ellison (CEO, Oracle) countering that the move would be impossible. As of October 15, 2019, that did take place in the blog post “Migration Complete –Amazon’s Consumer Business Just Turned off its Final Oracle Database”⁹.



Gartner further re-affirms the market perspective of Oracle:

“Although the Oracle Database product is generally portable to other clouds, customers should be aware that

- (1) Oracle RAC is not supported on other clouds
- (2) Oracle Database incurs a double license penalty when run on other clouds
- (3) Oracle Database is not certified to run on all CSP infrastructure.”¹⁰

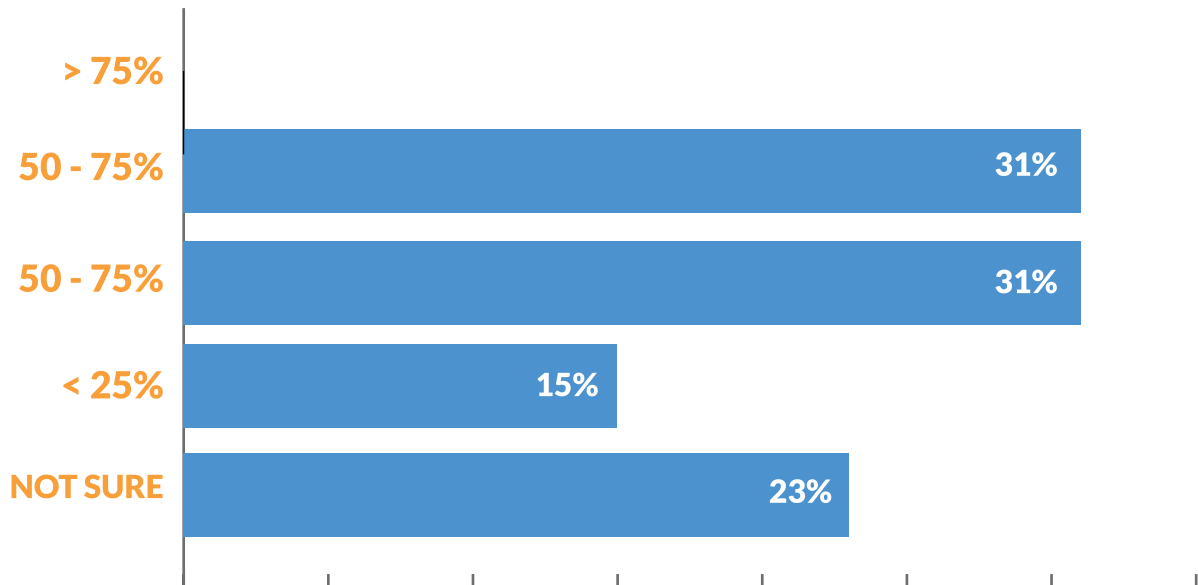
Key takeaway: *As the world moves to cloud, Oracle is set to be the massive loser because of their costs, contractual business practices and lack of innovation.*

⁹ <https://aws.amazon.com/blogs/aws/migration-complete-amazons-consumer-business-just-turned-off-its-final-oracle-database/>

¹⁰ <https://www.gartner.com/doc/reprints?id=1-24DKZ6ZR&ct=201015&st=sb>

“In your company, what percentage of your data is ‘old’ and of little value?”

Like an asset on a balance sheet, even data diminishes in value over time. But unlike a piece of equipment or machine used in a business, it is hard to dispose of data. There are complications of regulations and governance, legal obligations or simply overcoming an ‘it is just easier to keep it plugged in’ mindset. The data reveals that almost 25% of participants have limited insight to the state of their organization’s data, while another 31% believe greater than 50% of their data is old-and-obsolete. This quickly turns into petabytes of data likely sitting in “top tier” storage and providing low value at a high cost to both transaction systems and analytical data warehouses.



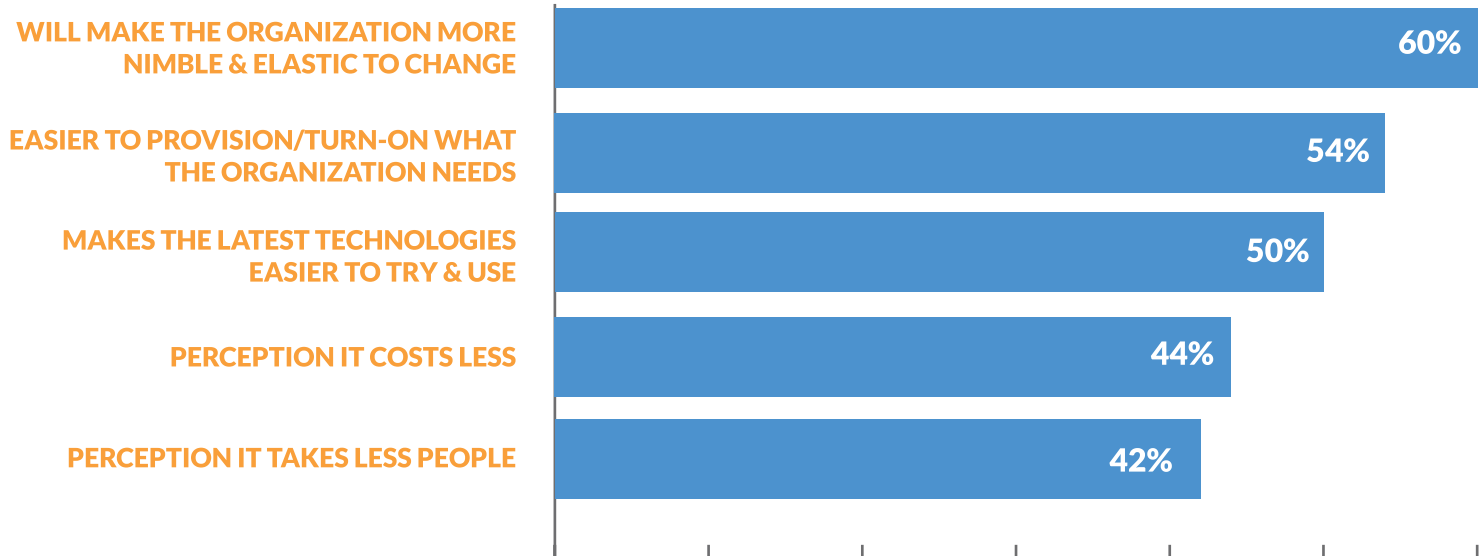
Key takeaway: As re-platforming takes place, make sure there is a concerted effort to clear out the unnecessary data. This could be based on age, what the data is (i.e. system log files, transactional change data) or duplication. This is also imperative as cloud environments charge enormous fees for network usage, storage and backups.

“Why do you think ‘the cloud’ is spoken about so much today?”

Enterprise consumption of cloud is the new narrative everywhere we look:

- McKinsey: **Cloud 2.0: Serverless architecture and the next wave of enterprise offerings**¹¹, May 15, 2020
- Bain and Company: **Revisiting the Five Faces of the Cloud**¹², March 12, 2019
- Gartner: **Gartner Forecasts Worldwide Public Cloud End-User Spending to Grow 18% in 2021**¹³, November 17, 2020

The research sought to uncover the true motivators in an organization’s decision to use ‘cloud’.



What makes this most interesting is that the motivation is LESS about using fewer people (42%) or reduced spend (44%), and more about driving up nimbleness (60%), faster provisioning/time-to-market (54%) and being able to try new technology with less risk and suffering (50%).

Key takeaway: *The sum of these 5 answers truly defines ‘transformation’ today with a balance of greater simplicity, fail/succeed quickly and cost reductions. It is not JUST about money.*

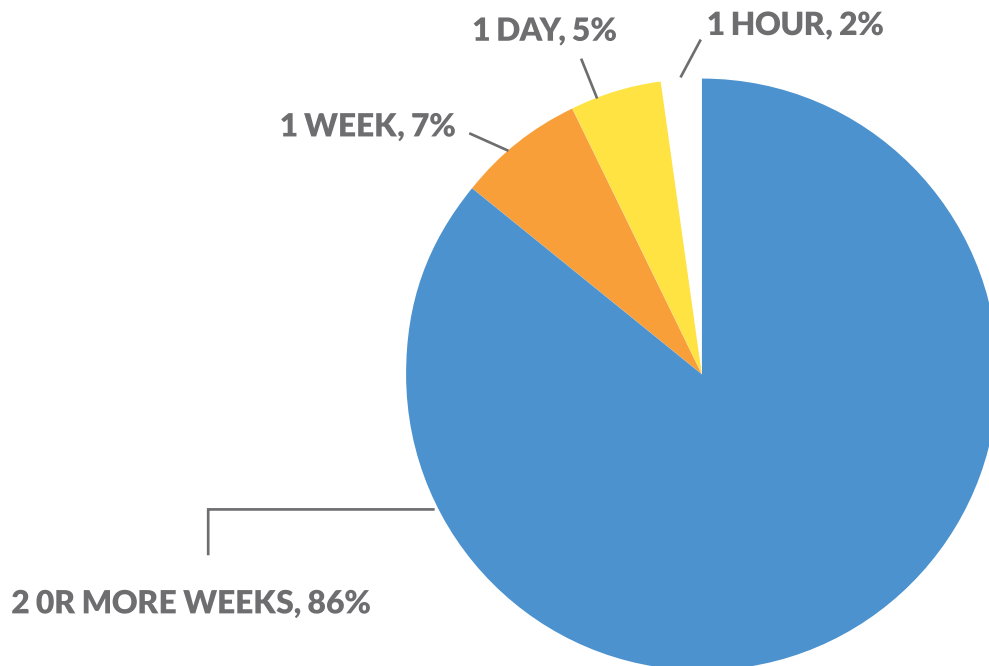
¹¹ <https://www.mckinsey.com/business-functions/mckinsey-digital/our-insights/tech-forward/cloud-20-serverless-architecture-and-the-next-wave-of-enterprise-offerings>

¹² <https://www.bain.com/insights/revisiting-the-five-faces-of-the-cloud/>

¹³ <https://www.gartner.com/en/newsroom/press-releases/2020-11-17-gartner-forecasts-worldwide-public-cloud-end-user-spending-to-grow-18-percent-in-2021>

“If you needed to turn on a new platform environment in your organization, how long would it take?”

As previously discussed, the ability to have faster provisioning and time-to-market is a primary motivator in using cloud. Yet, 86% of the responses stated that a new platform takes over 2 weeks to implement.

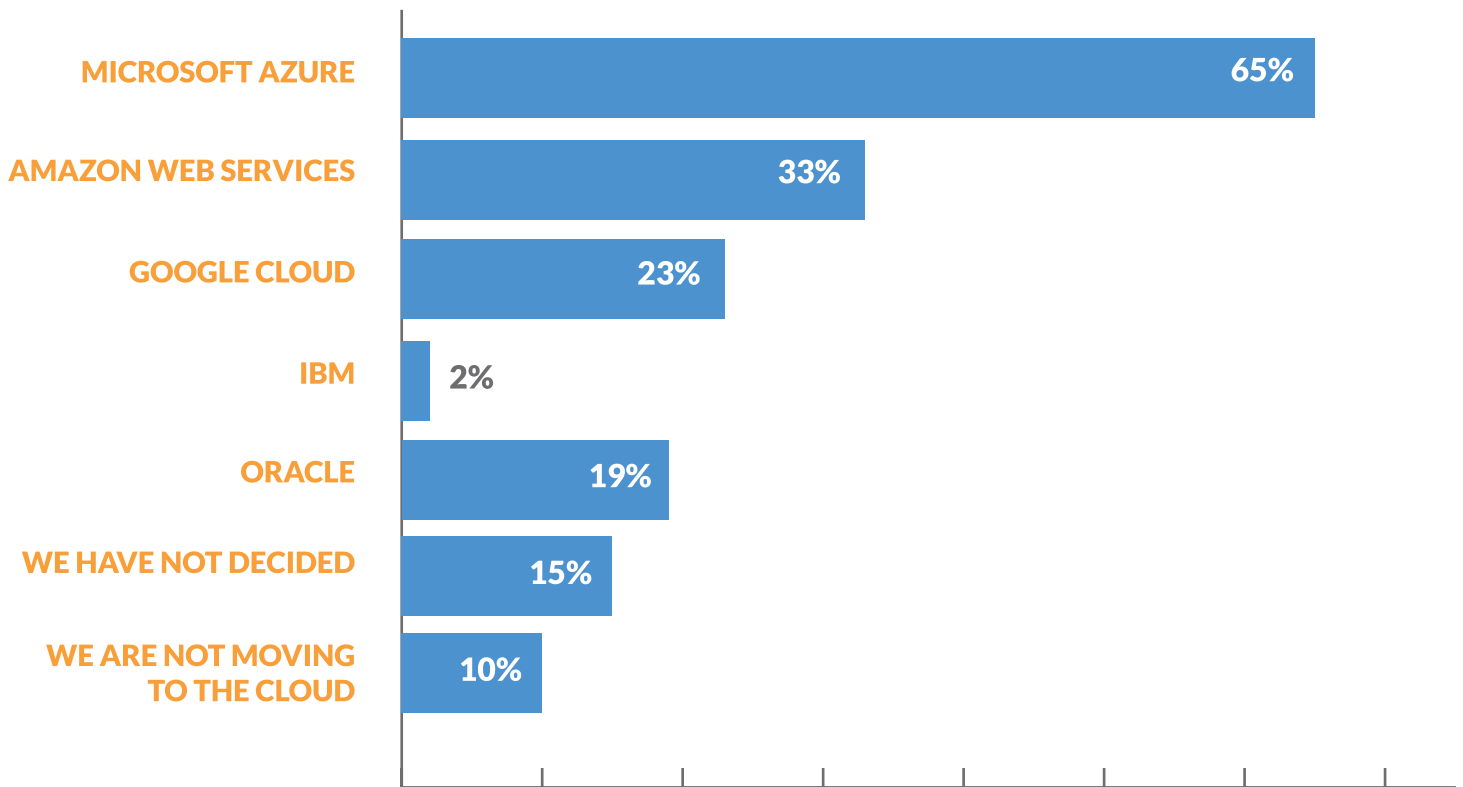


In client conversations, the traditional controls sign offs and people who manage how components were provisioned on-premises, have merely shifted these same processes up to cloud provisioning.

Key takeaway: Many organizations think they gain *SPEED* and *AGILITY* using the cloud. Without changing their internal processes, the long cycles will continue.

“If your organization has decided on a cloud platform, which ones do they include?”

The world has quickly turned into a three-horse race between Amazon, Microsoft and Google. When asked which cloud platforms were used, the participants answered as follows:



What makes these answers more interesting is the mapped sum of the choices that each respondent answered. For instance:

VENDOR	SOLE SOURCE	AND 1 OTHER	AND 2 OTHERS	TOTAL
AZURE	46%	31%	23%	100%
AMAZON	7%	40%	53%	100%
GOOGLE	20%	19%	61%	100%
IBM			100%	100%
ORACLE	11%	32%	57%	100%

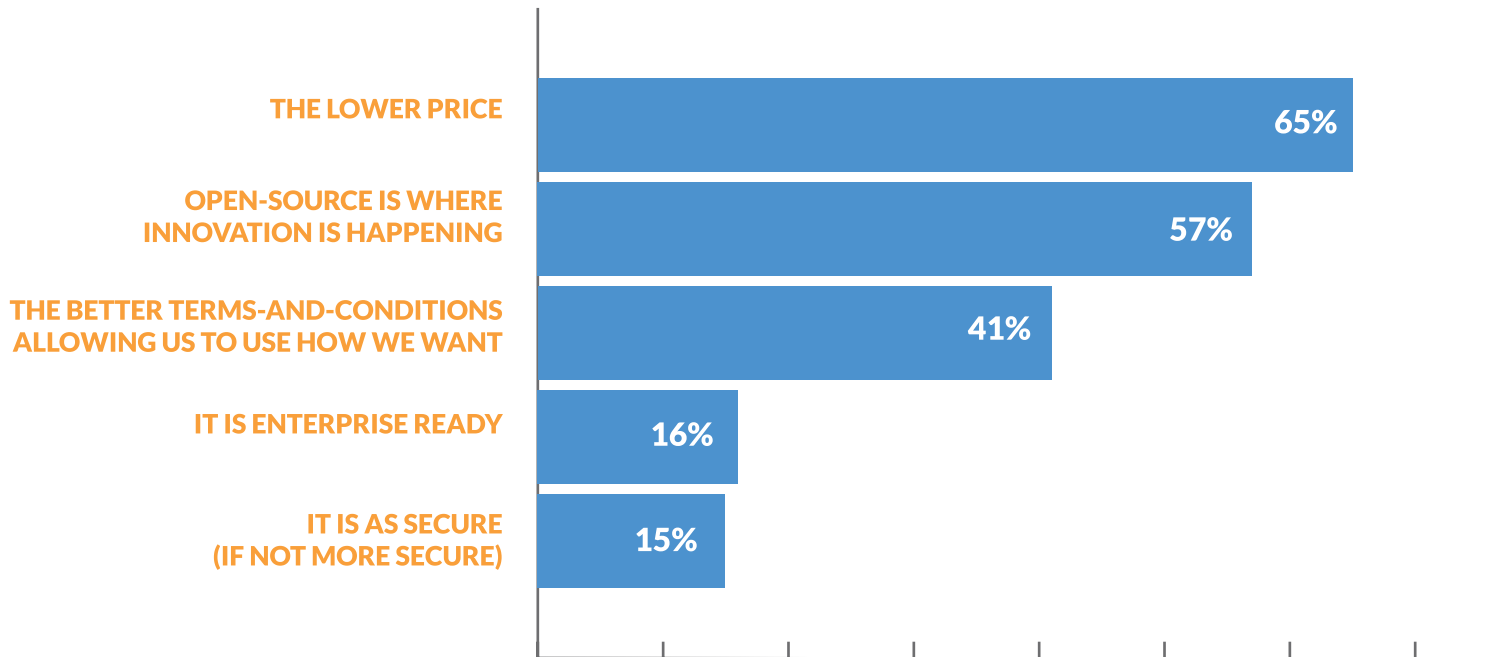
Additional facts to consider:

- Azure tends to be sole source.
- Rarely does anyone sole source Amazon and still want 2nd or 3rd options.
- Google is moving up in the pack but tends to be in that '3 or more cloud' procurement cycles.
- Oracle is rarely the sole source cloud and, odds are, is used because the client has COTS apps from Oracle (Siebel, Peoplesoft, etc.)

Key Takeaway: *Azure is the most trusted as a sole source, while the rest are part of a multi-cloud strategy.*

“Why do you think open-source technology is thriving?”

With internet and cloud, the pieces that make up most of the inner workings are part of the open-source world. Examples include Linux¹⁴ for an operating system, Python¹⁵ for programming, R¹⁶ for data science and Postgres¹⁷ for relational databases.



Without hesitation, the three primary drivers are price (65%), innovation (57%) and better contract terms (41%). Commercial software has taken advantage of their position with software audits, mediocre support, non-innovative engineering and arrogant salespeople.

Key takeaway: *Open source is ready for top tier workloads while also bringing down costs by 4-5x and allowing organizations to emancipate themselves from their commercial contracts.*

¹⁴ <https://en.wikipedia.org/wiki/Linux>

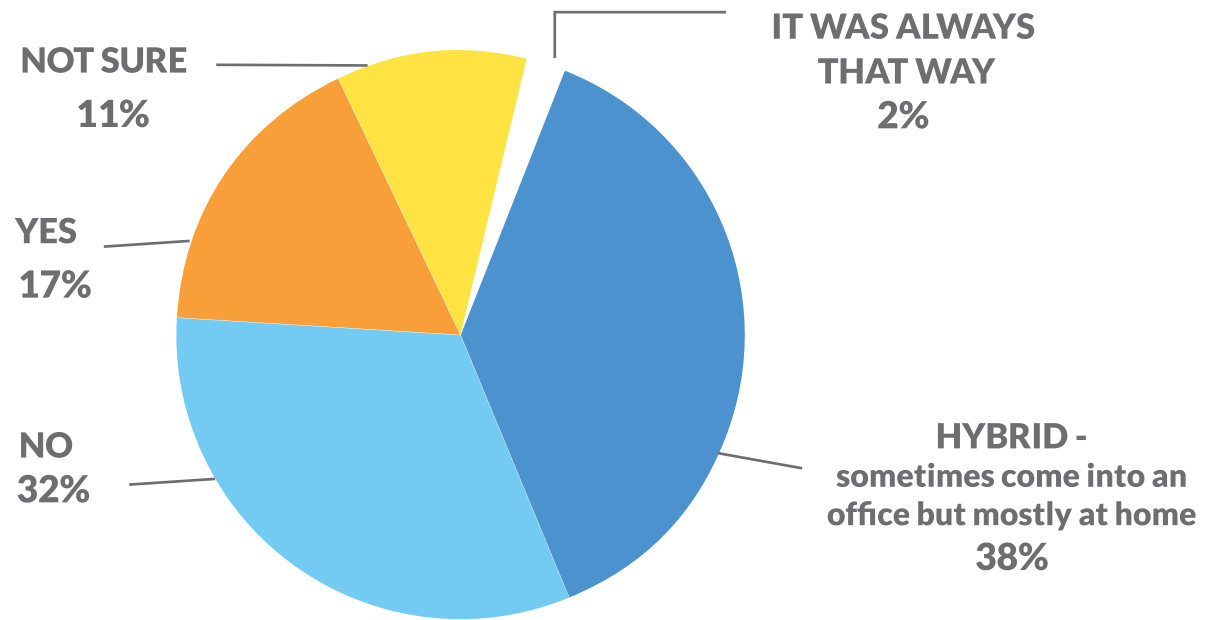
¹⁵ [https://en.wikipedia.org/wiki/Python_\(programming_language\)](https://en.wikipedia.org/wiki/Python_(programming_language))

¹⁶ [https://en.wikipedia.org/wiki/R_\(programming_language\)](https://en.wikipedia.org/wiki/R_(programming_language))

¹⁷ <https://www.postgresql.org/>

“Has your organization decided you can work from home permanently?”

The research concluded by asking participants what will happen from a workplace perspective. We consider this a litmus test of the broader work environments in the United States for the foreseeable future.



It is clear that in-person interaction with peers and colleagues is needed—even if it’s not every day. With 55% now working solely from home or in a hybrid model, one must ponder what this means for corporate office space, the pivot to hoteling, and the larger need for conference rooms.

Key Takeaway: *Keep this in mind where technology comes into place: Access, security, integrations, and the need for better data access from anywhere.*

SYNOPSIS

Though this research brought to light many notable changes to needs and perceptions of technology debt, there are several important results that should be noted:

- 1) Digital Transformation is still a driving force to bring a more nimble and less costly means to corporate computing, but cost-cutting goes hand-in-hand in the outcome.
- 2) The technical debt of legacy systems running old, low-value data is staggering. Only 15% of responses stated <25% of their data is old, meaning for 85%, 25% of all data is old data, and 95% said there is wasted money in keeping old tech alive.
- 3) The two largest vendors that organizations are looking to reduce their spend with are Oracle (45%) and Microsoft (30%).
- 4) Meanwhile, Azure is the most consumed cloud platform (65%), with only 15% of organizations having not decided yet. That means 85% of organizations have made cloud decisions.
- 5) 'Why cloud?' answers focused on aspects like nimbleness (67%), easier provisioning (60%) and trying new technology (56%). When asked about how long to provision a new environment, the answer remained at taking over 2 weeks (86%).
- 6) Open source is the new way forward, driven by where innovation is taking place (57%), better terms/conditions (41%) and much lower price (65%).

Apply this against a few macroeconomic facts:

“Gartner forecasts Worldwide IT spending to reach \$4 trillion in 2021”¹⁸, April 7, 2021

Although optimization and cost savings efforts won't disappear simply because there's more economic certainty in 2021, the focus for CIOs through the remainder of the year will be completing the digital business plans that are aimed at enhancing, extending and transforming the company's value proposition.

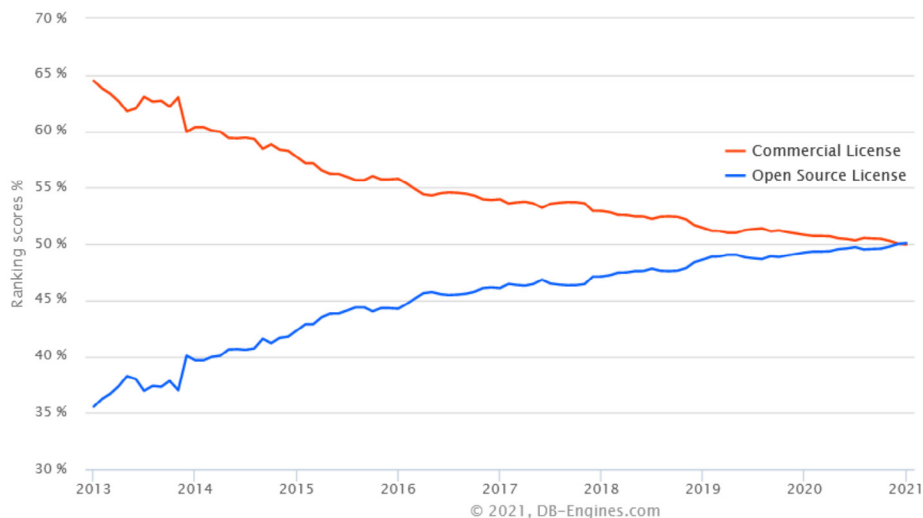
Table 1. Worldwide IT Spending Forecast (Millions of U.S. Dollars)

	2020 Spending	2020 Growth (%)	2021 Spending	2021 Growth (%)	2022 Spending	2022 Growth (%)
Data Center Systems	219,940	2.3	236,806	7.7	247,513	4.5
Enterprise Software	466,647	-2.1	516,872	10.8	571,725	10.6
Devices	663,223	-6.9	755,798	14.0	778,949	3.1
IT Services	1,021,187	-1.8	1,112,626	9.0	1,193,461	7.3
Communications Services	1,386,471	-0.7	1,450,444	4.6	1,504,743	3.7
Overall IT	3,757,468	-2.2	4,072,547	8.4	4,296,391	5.5

Source: Gartner (April 2021)

“Open-source database management systems are now more popular than commercial offerings”¹⁹ January 13, 2021

If we add up all the popularity scores of the 185 open-source DBMSs in the DB-Engines ranking, we get a higher score than the commercial counterparts.



This means the economic value of Moore's Law is truly beginning to take hold as (1) cloud is cheaper than on-prem, (2) open source is powerful enough to subjugate the expensive, legacy players and (3) technology has evolved where "fast time to market" to users and customers is the "new normal".

¹⁸ <https://www.gartner.com/en/newsroom/press-releases/2021-04-07-gartner-forecasts-worldwide-it-spending-to-reach-4-trillion-in-2021>
¹⁹ https://db-engines.com/en/blog_post/86

TOP FIVE NEXT STEPS

Though this research brought to light many notable changes to needs and perceptions of technology debt, there are several important results that should be noted:

- 1) Assess and inventory the current state. What should be considered for replatforming, migration (Oracle ->Postgres) and retirement
- 2) In going to the cloud, consider how to clean out the old, low-value data as a replatforming is taking place.
- 3) The cloud is like the mainframe where every subcomponent has a cost²⁰. But in the cloud it is about disk IOPS, network movement (ingress and egress) and how downsizing environments are very hard—to name a few.
- 4) Make the move easier with the right tooling and a new platform that makes data base migrations (and the applicable code) as easy as possible²¹.
- 5) Cloud can bring to a client everything they would hope if done the right way – but the cloud platform vendors will not always tell you where you are over provisioning. There are many ways an organization can over-pay for something that makes no difference in their platforms performance or business continuity. Much like putting higher-octane gasoline into a car that only needs low.

²⁰ <https://platform3solutions.com/cloudframe-how-your-cloud-platform-decisions-could-quickly-be-like-the-mainframe-world-of-yesteryear/>

²¹ <https://www.enterprisedb.com/why-edb/oracle-migration-to-postgres-and-move-from-oracle>



Platform 3 Solutions is a global leader in end-to-end legacy application migration and retirement solutions. Platform 3 Solutions offers a full suite of proprietary products, services, and support to empower secure and seamless transitions of data and applications, eliminate technology debt, and deliver the ROI to invest in technology modernization. Our proprietary Platform 3 Technology Debt Score™ accurately measures an organization's existing technology debt. Our Platform 3 ROI Assessment™ converts technology debt data into a defensible ROI model that demonstrates true savings that will be delivered through Platform 3 to free up cash to invest in modernization and ensure data compliance.

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