The Journey to Observability

How full-stack observability is helping technologists to deliver seamless digital experiences and drive innovation

Introduction

After two years in which they have displayed the most incredible resilience and skill to guide their organizations through the pandemic, technologists are now ready and primed to drive the next wave of innovation. And they see full-stack observability as the foundation for future success.

Across all industries, technologists know that they need to build on their current application monitoring tools and techniques in order to manage the increasing levels of complexity they are encountering in every corner of their IT estate. They are seeking out solutions which will give them full visibility into legacy on-premise architecture alongside cloud native environments, including the increasing deployment of microservices and container solutions. They are demanding the ability to monitor and optimize availability and performance across an ever more dynamic and fragmented technology landscape.

Full-stack observability provides technologists with unified, real-time visibility into IT availability and performance up and down the stack for compute, storage, network and public internet, from the customer facing application all the way into the back-end. It enables IT operations, development and networking teams to quickly and easily identify anomalies, understand root causes through dependency analysis, and fix issues before they impact end users and the business. And when this IT performance data is connected to business outcomes, technologists can rank issues based on their potential impact to the organization and prioritize actions accordingly.

Technologists recognize that full-stack observability is the great enabler for delivering the brilliant, seamless digital experiences that customers and employees now expect. They view it as the catalyst for future innovation and digital differentiation.

85%

of technologists believe that the shift to full-stack observability will be transformational for their business.

In February 2021 - in its report, [Agents of Transformation: The Rise of Full-Stack Observability](#) - Cisco AppDynamics revealed that 96% of global technologists believed that having the ability to monitor all technical areas across their IT stack and directly link IT performance to business outcomes, would be important over the coming 12 months. But the reality was that nearly all IT departments were still relying on multiple, disconnected solutions to monitor availability and performance. Technologists didn't have unified visibility across their IT estates and most were struggling to make any meaningful headway in realizing their ambitions for full-stack observability.

Appetite for full-stack observability has turned to action

Twelve months on, and after another challenging year for IT departments all over the world, this report examines the extent to which technologists have been able to advance their full-stack observability plans. It explores how much progress they've been able to make in achieving a more unified, real-time view of technology availability and performance, across all IT environments.

The research paints an encouraging picture, with global technologists surging ahead with their plans for full-stack observability, and many already achieving greater visibility across their IT estate.

Support for full-stack observability has soared almost universally, and technologists are receiving strong backing from business leaders, who are committing budget and resources to activate implementation plans.

Those organizations that have already generated improved visibility across their IT stack are reaping the benefits - from greater efficiency and productivity within the IT department, through to improved collaboration between teams and faster resolution of technology performance issues.

Technologists have had a glimpse of what full-stack observability is able to deliver, and now they're eager to accelerate their implementation plans to reap the full benefits.

A pivotal year in the journey to full-stack observability

While the progress made over the last 12 months has been impressive, most organizations remain at the earliest stages on the journey to full-stack observability, and the research makes clear that technologists need the right support, tools, skills and partners in place in order to improve and advance.

88%

of technologists report that appetite for full-stack observability within their organization has increased over the last 12 months.

85%

state that 2022 will be a pivotal year for their organization on the journey towards full-stack observability.

However, there is a widespread understanding that the transition from traditional monitoring to full-stack observability can be complex and takes time. Technologists are determined to realize their vision, and they are excited about the transformational benefits that this technology will bring.

Across all sectors and geographies, technologists know that the next 12 months will be critical as their organizations make the journey to full-stack observability. This year, they will be looking to build on the progress they have achieved so far and further expand their monitoring capabilities. By doing so, they will ensure that they have the visibility and insight to deliver seamless digital experiences at all times and drive competitive advantage.

The transition to full-stack observability is rapidly gaining momentum and technologists are feeling hugely optimistic about achieving and exceeding their goals in 2022.

"The world has changed forever over the past two years, and the way IT teams have responded has been inspiring. They have seized the opportunity to accelerate digital transformation programs at record speed and showed-up for customers, colleagues, and teams in new and unprecedented ways.

Full-stack observability will be critical to the next phase of business innovation and digital transformation. Not only will organizations be able to unlock the power of data in the app-centric world, but it will also enable the delivery of always-on, secure, and exceptional experiences for their users, all tied to business impact."

LIZ CENTONI
Chief Strategy Officer and GM, Applications
Cisco

Research methodology

To gauge the extent to which technologists have succeeded in implementing their full-stack observability strategies, and to understand their priorities for the future, AppDynamics has undertaken comprehensive global research, from board-level directors and CIOs, through to senior and mid-level IT management.

This research entailed:

- Interviews with 1,200 IT professionals in organizations with a turnover of at least $500m (with the exception of Colombia, where organizations with a turnover of at least $100m were included in the sample)

- Interviews were conducted in 14 markets — Australia, Brazil, Canada, Colombia, France, Germany, India, Japan, Mexico, Russia, Singapore, United Arab Emirates, United Kingdom and United States

- Respondents worked across a range of industries, including IT, financial services, retail, public sector, manufacturing and automotive, and media and communications

- All research was conducted by Insight Avenue in December 2021 and January 2022

Customer demand, IT complexity and the urgent need for full-stack observability

For technologists, the implementation of full-stack observability solutions has become mission-critical, with 90% citing it as a priority for their organization in the next 12 months.

This desire for unified visibility of the entire IT estate is being driven by a need to tackle greater complexity within the IT environment and to meet growing customer expectations for exceptional digital experiences. Technologists know that they can't afford any slip-ups when it comes to IT availability and performance, and that any disruption to digital services is likely to result in disenchanted customers and lost revenue.

These concerns are concentrating minds, both inside and outside the IT department, around the importance of optimizing IT performance and ensuring seamless digital experiences at all times. Indeed, 88% of technologists report that appetite for full-stack observability within their organization has increased over the last 12 months.

In 2021, many technologists collaborated with key stakeholders to build a business case for full-stack observability, setting out their vision for observability and plotting a path to achieve their goals.

As many as 91% of technologists state that their organization now has a defined full-stack observability strategy in place – with 37% already in execution mode, 39% taking their first steps and 15% ready to get started.

The drivers for full-stack observability

51%
Growing complexity of IT infrastructure

45%
Increasing customer and end user expectations for exceptional digital experiences

41%
Increased concern about a major outage or service disruption impacting applications and digital services

41%
Impact of the pandemic to working practices e.g. the move to hybrid work

38%
Ongoing pressure to accelerate digital transformation and innovation

34%
Prioritizing fixes based on business outcomes

33%
Inability to quickly identify the root cause of IT issues which are causing service disruption

28%
Too many disconnected monitoring tools creating data noise

24%
Pressure from leadership / senior executives

What factors are making the deployment of full-stack observability a priority in your organization?

"When every second counts - and every digital customer experience is make or break - delivering on a full-stack observability strategy in the next 12 months becomes critical."

GUIDO DE SIMONE
Senior Project Manager/Lean Agile Manager
Swisscom

Full-stack observability programs delivering immediate benefits

Talk turned to action during 2021. More than half of organizations (54%) started out on the journey to full-stack observability, and a further 36% are planning to do so in the next 12 months. That means that a remarkable 90% of organizations will be somewhere along the journey to full-stack observability during 2022.

To date, organizations have tended to weight their efforts marginally more towards increased observability into IT infrastructure. But network infrastructure and applications (internal operational and customer-facing) follow close behind with just a few percentage points between them, demonstrating that technologists struggle to prioritize one area of the IT estate over another. All areas are of critical importance.

More than a third (37%) of technologists state that their organization has prioritized efforts to generate greater visibility of IT performance within microservices, container and serverless environments over the last 12 months. This indicates the growing

emphasis that IT departments are placing on these environments and the rise of Kubernetes for microservices orchestration. This trend is likely to accelerate further during 2022.

At a broader level, however, technologists are acutely aware that they can't afford to neglect any area of the IT estate, with 98% stating that it is important to connect visibility across all areas of the IT stack.

Areas of focus for greater visibility

55%
Compute and storage infrastructure (traditional or cloud)

54%
Network infrastructure (traditional, cloud or WAN)

49%
Internal operational applications

48%
Customer-facing applications

37%
Microservices, container and serverless

Specifically, which elements of your IT estate have you prioritized in terms of achieving greater observability during 2021?

"Full-stack observability offers organizations a better understanding of how data flows between IT systems, enabling them to identify and address potential service issues before there's any negative impact on the end customer or user."

MADHU PEDDABOINA
Director of Information Technology eCommerce
The Children's Place

Many organizations are already seeing positive results from their efforts, with 86% of technologists reporting greater visibility across their IT stack over the last 12 months.

And irrespective of how far organizations have traveled down the road towards full-stack observability, those that have made progress in the last 12 months report a wide range of benefits, including improved productivity within the IT department, reduced operational costs and a greater ability to deploy IT teams on more strategic work.

Evidently, with greater visibility into IT availability and performance, technologists are now starting to be able to identify anomalies and understand the root causes of performance issues more easily. This means they're removing themselves from the constant cycle of firefighting which has characterized most IT departments over the last two years. Teams are becoming more productive and operational costs are falling because availability and performance issues are being addressed earlier and more quickly.

At the same time, technologists are getting more time to focus on innovation and driving competitive advantage for their organizations.

Organizational benefits of improved visibility across the IT stack

50%
Improved IT productivity / less time spent 'fire-fighting'

46%
Reduced IT operational costs due to ability to quickly isolate and tackle performance issues anywhere in the IT stack

45%
Better able to prioritize IT innovation or activity based on where the biggest business impacts will be

43%
Ability to deploy IT team to more strategic activity

43%
Improved collaboration / better relations across the business

41%
The ability to identify the root cause of any issue quickly and effectively

37%
Reduces complexity and enables us to cut through high volumes of data

30%
Fewer or shorter outages or periods of digital services disruption

What benefits have you seen in your organization by improving visibility across your whole IT stack during 2021? Base: 1024 with significant / moderate progress

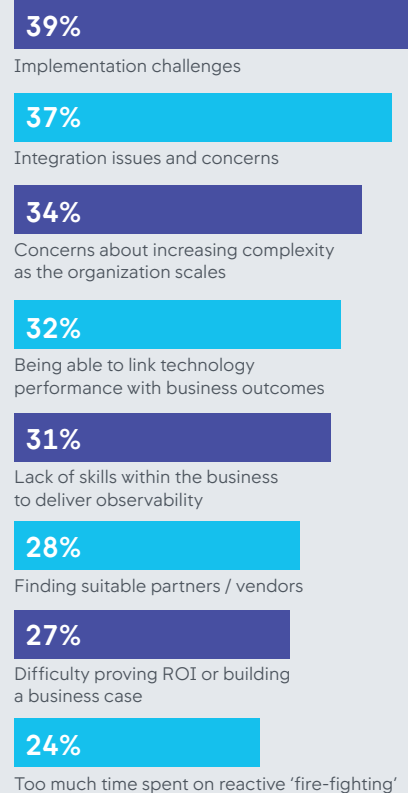# Technologists identify opportunities for rapid improvements

Looking ahead, 93% of technologists recognize that there is more work to be done to deploy full-stack observability within their organization.

Even after a year of tremendous progress, technologists are acutely aware that the clock is ticking and that they need to accelerate the shift from traditional monitoring to full-stack observability. In fact, 70% are concerned that their organization is now behind industry peers in implementing observability solutions.

Within every organization, technologists face a number of specific challenges that they need to address in order to deliver against their observability plans in 2022. But the positive takeaway is that these obstacles have been clearly identified and prioritized. IT leaders know where their weak spots are and they are putting themselves in the best possible place to find the right solutions. These include how they are able to optimize implementation and technology integration, and how they manage complexity as their organization scales its full-stack observability solutions.

Technologists believe that by linking technology performance with business outcomes and demonstrating return on investment from their full-stack observability programs, they can make great strides towards achieving their goals in 2022.

Biggest challenges in moving towards full-stack observability

39%
Implementation challenges

37%
Integration issues and concerns

34%
Concerns about increasing complexity as the organization scales

32%
Being able to link technology performance with business outcomes

31%
Lack of skills within the business to deliver observability

28%
Finding suitable partners / vendors

27%
Difficulty proving ROI or building a business case

24%
Too much time spent on reactive 'fire-fighting'

What do you think will be the biggest challenges in moving towards full-stack observability in 2022?

Of course, the implications for businesses that fail to build on their current monitoring solutions over the next 12 months are likely to be severe. 95% of technologists point to at least one negative organizational consequence of missing their full-stack observability goals in 2022. These include reduced productivity within the IT department, an inability to innovate and deliver digital transformation, and spiraling complexity as new applications and IT infrastructure are bolted on to the existing technology stack.

80% of technologists accept that organizations that fail to make significant strides in their journey towards full-stack observability in 2022 will face competitive disadvantage versus their peers.

Biggest organizational consequences of failing to progress with full-stack observability plans

37%
Productivity issues / time wasted trying to isolate root cause of IT performance issues

32%
Directly impact ability to innovate and deliver digital transformation

29%
Spiraling complexity as more infrastructure / applications "bolted" on

29%
Greater division between teams and technology silos

29%
Difficulty prioritizing IT activity

28%
Failure to deliver incredible digital experiences to customers and end users

27%
Unable to link technology performance issues to maximize business impact

24%
Loss of revenue / customers due to technology performance issues

24%
Wasted investment due to lack of visibility

What do you see as the biggest organizational consequences of failing to progress in delivering against full-stack observability plans in 2022?

Business leaders strongly support full-stack observability plans

Technologists are clear about where they can best focus efforts to hit their full-stack observability objectives and keep their organizations ahead of the competition.

75% of technologists regard skills as a critical factor in achieving their full-stack observability goals in 2022. 57% point to a need to define new practices and 55% believe that it's vital to identify the right technology vendor.

Technologists are evidently aware that monitoring performance in the cloud requires specific skill sets, particularly due to the shift to OpenTelemetry - a specific telemetry framework for modern environments. It will therefore be vital for organizations to ensure they have access to these skills within a finite and fiercely competitive talent pool.

Similarly, there is a broad understanding that the shift to observability requires a holistic strategy which encompasses new ways of working, with greater collaboration between teams and a willingness to trust in a single source of truth for all availability and performance data. This is where partners have a vital role to play, not only in implementing new technology solutions but also advising on the cultural and structural changes required for organizations to reap the complete benefits of full-stack observability.

Thankfully, the research finds that technologists are receiving unwavering backing from senior leaders within their organizations. 93% of technologists report that the wider business has been supportive of their efforts to implement full-stack observability, in terms of providing the necessary budget and resources.

This is a hugely significant development in the evolution of full-stack observability, suggesting that technologists are now well positioned to ramp up their implementation programs with the sponsorship and investment they need to deliver success.

Momentum is building in the transition to full-stack observability, and 83% of technologists report some level of confidence that their organization will reach its observability goals in the next 12 months.

Accelerating the journey to observability

The research explored how far organizations have progressed on the journey to deploying full-stack observability and achieving maximum benefits for the business.

Given the fact that this is still a nascent area of technology, it's unsurprising that the majority of organizations, while heading in the right direction, are still at the earlier stages of their journey.
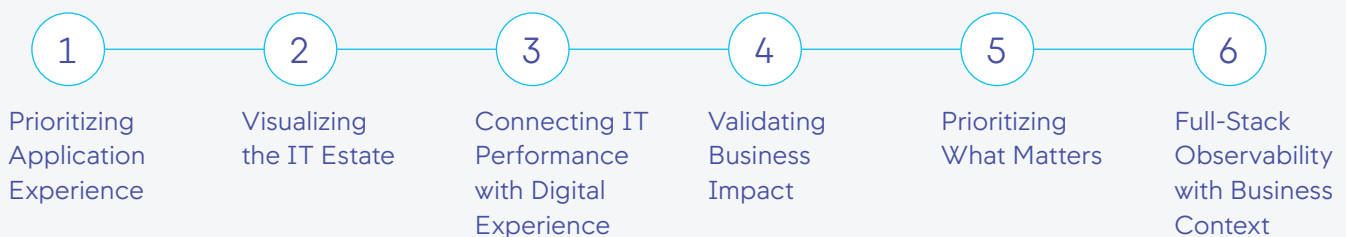
Many technologists are relying on multiple, disconnected tools to monitor IT availability and performance across the IT stack. In most cases, these existing monitoring solutions are performing an invaluable job, enabling technologists to identify issues and take appropriate action within a specific domain. But the issue is often a lack of connection and interoperability between these tools which makes it very difficult to understand dependencies across, as well as up and down, the IT stack.

Elsewhere, some organizations have advanced to a more unified monitoring strategy, but they still have little visibility into the impact of availability and performance issues, and they are unable to link these issues to business KPIs in real-time.

Importantly, however, technologists understand that deployment of full-stack observability is a multi-stage journey that will evolve as IT complexity continues to increase within their organization. And they continue to be motivated by the game-changing advantages they will deliver if they are able to execute on their plans.

87% of technologists feel excited about the benefits that this technology can bring to their organization from both an IT and business performance perspective. And 85% believe that the shift to full-stack observability will be transformational for their business.

The six stages of the journey to observability

1	2	3	4	5	6
Prioritizing Application Experience	Visualizing the IT Estate	Connecting IT Performance with Digital Experience	Validating Business Impact	Prioritizing What Matters	Full-Stack Observability with Business Context

Realizing the transformational benefits of full-stack observability

As businesses look ahead to the next wave of innovation, leaving behind the constraints of the pandemic, technologists stand on the cusp of an incredible period of change and transformation. And they know that they have a unique opportunity to shape a successful future for their organizations.

As the research shows, this appetite amongst technologists to play a lead role within their organizations is driving phenomenal uptake of what is still a nascent technology.

Across the board, technologists have experienced the value that greater visibility into IT availability and performance can deliver, and now they are determined to build on their existing monitoring capabilities and accelerate their shift towards full-stack observability.

85%

of technologists state that 2022 will be a pivotal year on their journey towards full-stack observability.

98%

of technologists now believe that it's important to be able to directly correlate technology performance across the full IT stack with business outcomes to prioritize actions based on what will have the biggest impact.

The role that vendors and partners play in the transition to full-stack observability will be more crucial than ever. Such rapid and complex change needs expert support. But 86% of technologists are confident that, with support from the right technology vendor, their organization can make significant progress towards its full-stack observability goals in 2022. And this research shows that they are now in a great position to make major advancements over the next 12 months, with the knowledge, commitment, support and resources they need to realize their ambitions.

Full-stack observability has shown itself to be the gateway to future business success and technologists are ready to take full advantage.

"The momentum and excitement we're seeing in this emerging and rapidly growing area of technology is incredible. Full-stack observability is now non-negotiable for organizations wanting to filter through the soaring volumes of data created by rapid innovation and the phenomenal increase in workloads that have been moved to the cloud. Today, real-time visibility into availability and performance across all IT environments is essential if technologists want to deliver seamless digital experiences for their customers and the business."

LINDA TONG
General Manager
Cisco AppDynamics

About AppDynamics

AppDynamics is a key component of Cisco's solution for full-stack observability and is helping technologists see, understand, and optimize what happens inside and beyond their IT architecture - all through the lens of business impact.

AppDynamics supports organizations across all sectors to navigate the journey to full-stack observability, providing technologists with the tools, insight and expertise they need to build on their existing monitoring capabilities and generate real-time visibility into their entire IT stack. This enables technologists to accelerate their full-stack observability programs and to deliver the exceptional digital experiences that customers and employees now demand.

To find out more about full-stack observability with business context from AppDynamics, click here.

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