ANALYST BRIEF
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The digital business is dependent on highly resilient and well-performing applications. Data streaming, messaging, and event processing (event-driven architecture) across multiple clouds are critical to fully integrating applications with data in real time. Proactively managing these systems is mission critical.

The Complexity of Modern Integration Drives the Need for Innovative Observability Solutions

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Introduction

IDC forecasts that an explosion of new applications will result in the number of applications worldwide growing from 195 million in 2021 to 750 million in 2025. This significant increase is driven by the needs of the digital business and efficiency improvements of IT through modern organizational constructs such as DevOps coupled with automation capabilities of the often-utilized continuous integration/continuous deployment (CI/CD) pipelines.

Much of this growth will occur in cloud-native technologies such as serverless and containers. IDC forecasts that the number of containers will grow from 3 billion in 2022 to over 6.5 billion in 2025. Even today, new applications increasingly depend on messaging and streaming to provide real-time integration to customers and employees. For example, a financial application may need to pull the latest up-to-date tax tables in real time.

In addition to messaging, modern applications must handle events in real time and high-speed streaming data. For example, retailers often need to stream data for live point of sale, inventory, and fraud monitoring. A manufacturing company may need to process events live from the plant floor to identify proactive equipment maintenance. All these use cases are typically dependent on a hybrid cloud. IDC surveys show that Global 1000 enterprises process 60% of data on premises or on the company's edge, while 97% also report they use multiple clouds. Figure 1 shows enterprises still need to make progress in analyzing the vast amount of data they generate, with an average of only 50% of usable data analyzed to benefit the organization.

AT A GLANCE

KEY STAT

According to an IDC survey, 79.4% of respondents said that digital infrastructure is very important or mission critical to achieving business goals.

WHAT'S IMPORTANT

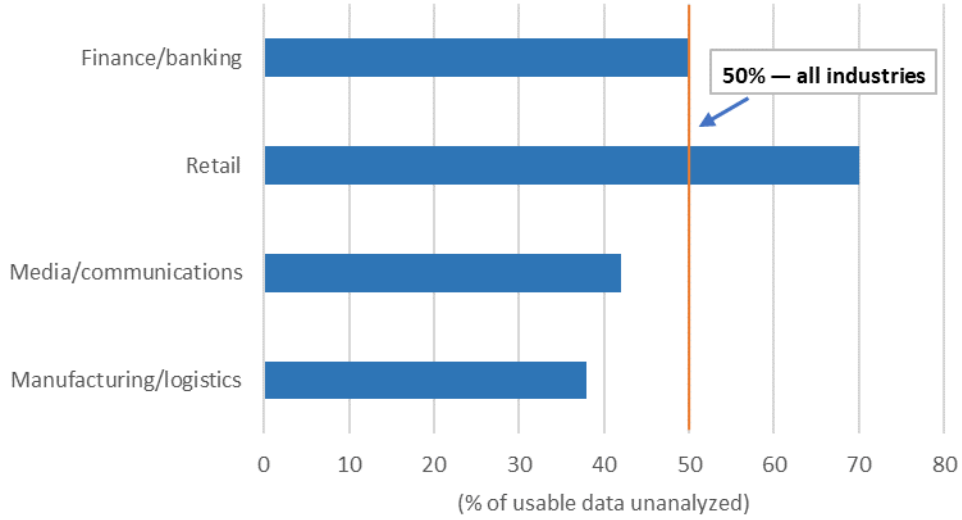
Both on-premises and cloud-based applications depend on integrating increasingly complex web services and APIs to provide an engaging customer experience.

KEY TAKEAWAYS

Observability solutions for application integration using a single pane of glass to proactively identify and automatically correct messaging incidents are critically needed to support a digital business.

This modern level of integration is called MESH — Messaging, Event processing, and Streaming across Hybrid cloud. The complexity of expanding integration points to multiple clouds with rapidly growing applications can stress IT's day 2 support. DevOps and site reliability engineering (SRE) teams need a way consistently deploy, monitor, and manage messaging and integration. Infrastructure as code is becoming a standard method to provision resources such as servers and networks; the next evolution is integration as code for managing and troubleshooting the MESH environment. The digital business requires this type of agility and demands high levels of resiliency. IT delivers for the digital business with effective monitoring and the ability to troubleshoot and get to the root cause.

FIGURE 1: ***Data Analyzed by Industry***



Source: IDC's Global Datasphere, 2022

Benefits

Enterprises can benefit from a central tool to deploy and manage their MESH infrastructure in several ways. By alerting to performance issues such as a backlog of messages in a specific queue or a malformed "stuck" message or error event, MESH architecture lets SRE teams resolve issues before a user opens an incident ticket. Moreover, common reoccurring MESH incidents can be automated to provide near-instant resolution without manual intervention.

Observability is typically defined as consisting of three pillars: metrics, logs, and traces. Enterprises can deploy an "observability plus" solution by combining message and event monitoring capabilities with the classic observability definition. This solution will further enable the effectiveness of operations and SRE teams. Industry use cases for MESH offer additional benefits to finance, retail, and manufacturing.

Industry Benefits: Finance

Financial services companies are racing to provide the most personalized, frictionless, and timely customer experiences. The competition for new customers is fierce, and 80% of respondents to an IDC survey said they will defect to another provider if they have a bad experience with an existing provider. The urgency is magnified by the continuing disruption of nimble fintech start-ups entering the sector. Fintech disruptors rewrite the value propositions and make customers aware that there are options to established financial institutions.

The mobile and cloud apps for financial service providers require secure integration with third-party credit agencies, bank accounts, credit cards, identity management, payment processors, and so forth. One failed integration point can bring the best mobile finance application to its knees and render it unusable. In addition, the growing use of self-service applications with finance providers means that without nearly 100% uptime, customer service functions cease to operate. This mission-critical need for MESH monitoring and proactive incident identification will improve customer retention and drive business value.

Industry Benefits: Retail

The pandemic drove new applications such as home delivery and online order for in-store or curbside pickup. This move to an omni-channel approach to retail means retailers are meeting customers where they are. A customer may be on a website, in the store, interacting with a chatbot, or on social media. As a result, retailers that target advertising, ordering, and customer communication across all channels have a competitive advantage over companies focusing on fewer channels or only one channel.

In the United States, there are approximately 1,045 million brick-and-mortar stores, per National Retail Federation (NRF) estimates. The NRF's assessment is in the range of 6–7 million physical stores worldwide. Each store's ability to collect telemetry data on inventory and sales transactions is increasing. In addition, customer loyalty programs have become more valuable in tracking trends and improving proper stocking for a store's best customers. These use cases add a tremendous spike in data collected and analyzed. Retailers expect to grow the amount of data collected by over 3.5x in the next five years.

This drive for new applications and more data can be achieved only through tighter coupling with the physical store's collection devices and online customer integration. MESH is crucial in providing a flexible infrastructure so that retail executives can access real-time analytics and customers can pick their preferred channel for order fulfillment.

Industry Benefits: Manufacturing

The ongoing disruptions of the global supply chain and the impacts of inflation underscore the importance of resilient and agile manufacturing. These external shocks push many manufacturers toward digitalizing production. In times of uncertainty, digitally transformed businesses have outperformed their less mature peers in mitigating risks and leveraging new opportunities. These critical transformations on the factory floor are called Industry 4.0 or the digital factory.

Traditional business applications, such as manufacturing execution systems (MES) and enterprise asset management, can now leverage modern infrastructure such as cloud messaging and real-time data streaming provided by the Internet of Things (IoT) and edge analytics to realize the digital factory vision. In addition, digital twins have effectively enabled a real-life representation of assets and processes. This approach has provided an unprecedented opportunity for increased time to value, improved quality, better insights, and improved employee training.

The COVID-19 pandemic has also emphasized the importance of remote production enabled by digital technologies to ensure business continuity. IDC predicts that by 2023, 40% of Global 2000 companies will develop all-new processes as remote-first designs, compared with the very limited number of remote-first processes in 2020. The integration of plant floor–based IoT devices with digital twins and other critical business applications can be achieved only through MESH. With many plants running 24 x 7 to keep up with demand and maintain margin efficiencies, the ability to use MESH monitoring and automation helps deliver on Industry 4.0.

Considerations

In recent years, enterprises have begun to invest in cloud management and observability platforms. However, many of these platforms cannot surface issues with the integration and messaging layers. The need to provision new message queues consistently is a common request of enterprises. Using automation to solve common reoccurring problems of MESH is another need for digital businesses in many industries.

Cloud-native digital business applications tend to use several industry-standard tools for integration. Kafka is an example of a toolset for building real-time streaming pipelines. Azure Service Bus is a popular message queue for cloud-based applications, while Azure BizTalk is an on-premises solution for electronic data interchange (EDI) and back-end database integration. Additionally, IBM MQ is standard among customers still using IBM hardware for enterprise business applications. These toolsets must be monitored and managed proactively to keep digital business flowing.

Digital businesses also need to tie in their software-as-a-service (SaaS) applications. Nearly all (99%) enterprises use SaaS-based applications. In the typical enterprise, SaaS spending is 3x greater than infrastructure-as-a-service (IaaS) hyperscaler spending. The value of SaaS is integrating with enterprise custom data. This data adds value and relevancy to the SaaS application, yet observability solutions typically miss this key integration point. Next-generation MESH monitoring solutions can provide visibility into data flowing across SaaS applications.

Key Trends

The following trends are helping drive the adoption of MESH:

- Tool consolidation and rationalization are key as enterprises look to reduce costs and improve efficiencies.
- IT automation and AI are underpinnings of many day 1 and day 2 operations. Messaging should not be overlooked.
- Multiple clouds, including hybrid, public, and edge, are used in nearly every enterprise today.
- The combination of observability, events, and messaging provides a turbocharged approach to resolving issues and making SRE teams more effective.
- The explosion of containers and mobile applications with multiple clouds and integration points drives complexity.
- MESH is an increasingly critical area to monitor and automate for digital businesses.

Conclusion

The growth of new applications and the demands of digital businesses drive the need to monitor and solve issues at the MESH layer proactively. Enterprises that can rapidly provision new messaging infrastructure and automate resolutions to routine incidents will have a competitive advantage over companies using more manual processes.

Digital businesses today need more than just observability. They need the capability to pinpoint integration issues and resolve them proactively.

About the Analyst

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Jevin Jensen is the Research Vice President of IDC's Intelligent CloudOps Markets service. He covers infrastructure as code, GitOps, IT infrastructure automation, cloud cost transparency, FinOps, hybrid/public/multicloud management platforms, and edge management.

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https://www.meshiq.com

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