Technology Insight for Multiexperience Development Platforms

Published 7 May 2020 - ID G00722800 - 14 min read

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Initiatives: Application Architecture, Development, Integration and Platforms

Great companies don’t just build apps, they build experiences. Application leaders need a multiexperience development platform to deliver distinctive user experiences that span multiple devices, digital touchpoints and interaction modalities efficiently and rapidly.

Overview

Key Findings

■ Siloed app creation is hard to scale, leads to inconsistent user experience (UX) and ultimately impacts the product’s value and maintainability. Disjointed front-end development tools and back-end approaches exacerbate this problem.

■ Customers and employees expect a seamless experience across multiple apps, but application leaders struggle with investing in fragmented technologies and finding requisite skills, especially for new modalities like immersive and conversational.

■ Business and IT development teams lack a unified development platform to effectively collaborate, deliver and manage the life cycle of multiexperience digital products.

Recommendations

Application leaders responsible for architecture, development, integration and platform strategies must adopt a multiexperience development platform (MXDP) to:

■ Deliver a broader portfolio of multiexperience digital products by enabling fusion teams (business and IT collaborative development) to build and manage them on the same platform.

■ Expedite alignment of development practices and technologies across the enterprise by using standardized back-end services and APIs while optimizing for a multiexperience front-end strategy.

■ Replace existing, less productive development tools and frameworks by using an MXDP to supplement or augment them for rearchitecture or replatforming applications.

Strategic Planning Assumptions
Through 2024, organizations with an established multiexperience strategy will outperform competitors in customer experience employee experience satisfaction metrics.

By 2024, one out of three enterprises will use an MXDP to accelerate the speed of IT and business fusion teams to deliver successful digital products.

Analysis

According to the 2020 Gartner CIO Survey, 36% of participant organizations had already deployed a conversational platform or planned to within 12 months (see the Evidence section). If these conversational platforms are not connected to web and mobile app development, then they will become silos of development over time.

Companies have worked hard to break down the silos of web and mobile app development over the past decade. As we enter the next decade of app development, application leaders must continue to factor in new experiences into their apps, such as conversational, immersive, wearables and Internet of Things (IoT).

Definitions

A multiexperience development platform offers development teams an opinionated and integrated set of front-end development tools and “backends for frontends” (BFF) services. Its purpose is to enable distributed and scalable development (both in teams and architecture) of fit-for-purpose apps across digital touchpoints and interaction modalities.

Adopting an MXDP helps to bring together development activities across myriad types of apps so that the user experience across them is seamless and more engaging. The platform is not merely a loose collection of tools and services, but rather an opinionated development platform stack — meaning there is guidance and certain prescribed approaches to development for teams to ensure consistency and productivity (see Figure 1).

Figure 1: Adopt an MXDP to Bring Together Development Activities
Benefits and Uses

An MXDP should serve as one of the cornerstones to support a future of applications strategy (see “Future of Applications: Delivering the Composable Enterprise”). Such a platform will be a major influence in terms of shaping your front-end development practices and team skills around its “composable experience” capabilities.

An MXDP provides the design-time and runtime platform to better standardize and accelerate the development of these fit-for-purpose apps for customers and partners in the digital business, and for employees in the digital workplace.

By adopting an MXDP, application leaders can enable IT and business development teams to:

- Improve collaboration with the business in designing, building, and managing apps and experiences, particularly as part of a continuous modernization strategy (see “Application Modernization Should Be Business-Centric, Continuous and Multiplatform”).
Adoption Rate

Improving customer and user experience is a top three business priority for more innovation leaders (41%) in Gartner’s 2019 Tech Innovation Study than any other priority, except for improving process efficiency (44%).

In another 2019 Gartner survey on the digital workplace, the top three drivers for transformation are “greater enablement of employees,” “improvements in collaboration” and “improvements in end-user experiences.”

Based on these trends and drivers, Gartner expects that converged development for custom web apps, progressive web apps (PWAs), and mobile apps will be the main driver of adoption of MXDPs to improve UX. The ability to design and deploy new apps will become an important criterion as MXDPs increasingly support apps for both mobile customers and employees.

Conversational app development will grow in prominence and volume as the tooling and user experience improve. These apps will be deployed as chatbots within custom mobile and web apps, as well as part of popular chat platforms, such as Facebook Messenger, Slack and WeChat. For the most part, voice apps built on MXDPs will publish to the Amazon Alexa and Google Home platforms.

According to Gartner client inquiry and Peer Insights’ review data (see Note 1), client adoption of conversational user interfaces (CUIs) and chatbots increased by 120% in 2019, which was another year of strong adoption following a 185% increase in 2018. The data also indicates that 49% of inquiries and 48% of adoption interest in CUI are currently coming from business (non-IT) and executive leadership. We expect this trend to continue as adoption momentum creates a center of gravity and senior business leaders begin viewing this technology as a competitive necessity (see “Conversational UI Adoption Data for Tech CEOs to Target Key Segments”).

Accelerate app delivery by increasing developer productivity across multiple digital products using high-productivity tooling, shared components and services, and common development languages and patterns.

Support better application architecture, with mediated APIs and a BFF design pattern, to simplify application maintenance across touchpoint and modalities.

Reduce the total cost and time of development by providing BFF APIs and services that are portable and reusable across touchpoints, such as offline data synchronization, push notifications, location services, natural language processing, state retention and user session management.

Enable faster release cycles and continuous improvement by utilizing DevOps practices and tooling supported within the platform.
In terms of immersive app development, we expect augmented reality use cases on iOS and Android to be the focus for MXDPs, but the expansion of WebAR support would also be disruptive in the same way that PWAs are for web. Support for specialized hardware for immersive use cases, such as Hololens or Oculus, will be specific to platforms that cater to specific industry solutions.

Wearable apps will have smartwatches as their primary targets for the next two years, but we expect broader support for IoT use cases via smart appliances, connected cars and edge equipment.

Overall the adoption rate of MXDPs is still in the emerging stage (estimated at 5% to 20% of the target market). Gartner sees growth in the market based on increased client inquiries and vendors adding multiexperience capabilities to their platforms.

Risks

For some IT organizations, a single-vendor MXDP may be seen as too proprietary and not flexible enough. This is particularly true for teams building highly customized or high-performance apps, and the front-end tools and the UX quality of some MXDPs may not be sufficient. Forcing an app into a platform that doesn't have the capabilities to meet specific customization or performance optimization will lead to a poor business outcome.

The MXDP market is immature and evolving, and not all MXDPs offer the same features and capabilities. So, carefully evaluate for ones that fit your sweet spot of multiexperience needs — be they for internal or external use cases. For more mature and advanced organizations, application leaders may be better off assembling a set of best-of-breed front-end tools and back-end stacks.

When considering the risks of an MXDP, application leaders must:

- Gauge the potential for vendor lock-in and a single point of failure, which is higher given the reliance on the platform to support multiple use cases.
- Investigate the software licensing for an MXDP, which may be complex given the variety of use cases, end users and developer personas that make use of the platform.
- Prepare for not realizing ROI until a high volume of users and platform usage is attained.
- Ensure that the product roadmap of maturing MXDPs addresses any poorly integrated tooling, lacking feature capabilities, or inconsistencies in platform performance.
- Work with your line of business (LOB) partners, who are driving more tactical investments in development tools. Help them understand the strategic value of an MXDP versus addressing smaller opportunities with lighter-weight tools.
- Determine the level of effort needed to integrate an MXDP with existing development and DevOps toolchains, which can be high in complex heterogeneous environments. Configuring and maintaining the MXDP for just a handful of apps may require more effort than the benefits.
Evaluation Factors

MXDPs are not “omnichannel” solutions that offer packaged applications or out-of-the-box experiences. The core value of an MXDP lies in its ability to coalesce software development life cycle activities across a range of apps to address the digital user journey. The need for this ability will only increase as the number of devices, digital touchpoints and modes of interaction increases.

Based on Gartner’s analysis of customers with successful MXDP implementations, application leaders must evaluate their MXDP investment and strategy based on these top four factors:

- Ensure the functional depth of capabilities of the platform to meet your app development and business needs in the near term (12 to 18 months)

- Assess the vendor’s vision and roadmap for its MXDP breadth to ensure alignment with the direction in which your organization is moving beyond the next 24 months. This may include how to support richer conversational, immersive, wearable and IoT use cases, and scaling development across business units and geographies.

- Evaluate how well-integrated the tools and services are within the platform, and with external complementary or supplementary tools and services, and their ability to support the entire design to DevOps life cycle.

- Determine how the MXDP vendor fits as a strategic technology partner for your organization. This product will be a cornerstone of your digital business technology platform, and the vendor should likewise play a strategic role alongside core systems, such as CRM and ERP.

MXDP Alternatives

The alternative to an MXDP is to assemble specialized development tools to meet all the use cases and developer personas’ needs. Teams must also be able to define a reference architecture based on proven patterns and be disciplined enough to adhere to it (see “Mediated APIs: An Essential Application Architecture for Digital Business”). However, this approach is recommended mainly for more mature, modern development organizations.

The teams would need alternative front-end development tools such as:

- Native iOS and Android development.

- Progressive web app development.

- Bot frameworks and conversational platforms (such as Google Dialogflow and Amazon Lex).

- Augmented reality toolkits (such as Wikitude, 8th Wall and Letsee).

- Open-source and cross-platform frameworks (such as React Native, Flutter and Ionic).
The back-end stack required to support such a best-of-breed approach may consist of:

- Various PaaS services (such as communications PaaS [Twilio], database PaaS [MongoDB]).
- API gateway and management products (see “Magic Quadrant for Full Life Cycle API Management”).
- Cloud-hosted AI services (see “Magic Quadrant for Cloud AI Developer Services”).

The apps and experiences may also need to rely on the content, logic and processes exposed through a digital experience platform (see “Defining the Digital Experience Platform”). The DXP is responsible for digital experience composition, management and delivery, and many DXPs offer a "headless" API-driven approach, which would work well with an MXDP for front-end development (see “Hybrid Headless Content as a Service Is the Future of Digital Experiences”).

Another common comparison is between MXDPs and low-code application platforms (LCAPs). A product can be both an LCAP and MXDP, but when used as an MXDP it should be able to support the needs of development teams using both coding and low-code approaches. Unlike MXDPs, the primary evaluation criterion of an LCAP is its ease of use and deployment, as well as degree of productivity for professional or citizen developers. An MXDP is primarily evaluated on its ability to build high-end, highly customized apps in support of the digital user experience across devices, digital touchpoints and interaction modalities — which is not the focus of the majority of LCAPs.

Recommendations

Application leaders working to transform their development strategies should:

- Develop a strategy for using an MXDP alongside the development tools that are already used inside the organization, such as code-centric IDEs and low-code development tools. Consider eventually replacing some of the existing tools.
- Select an MXDP that matches as closely as possible to existing development teams’ skill sets, as well as the use cases of your apps.
- Develop policies for vendor selection that mitigate vendor lock-in by including more-open integration approaches and standards-based architectures and development technologies.
- Manage the risk of vendor dependency by making strategic investments in additional PaaS and full life cycle API management products that underpin apps built with the MXDP.
- Ensure that front-end tooling and any back-end services are still loosely coupled for flexibility when using an MXDP from a vendor that also sells (or includes PaaS) products.
- Select MXDPs that support a cloud-native architecture and an ability to deploy across multiple clouds to ensure high availability, scalability, portability and performance.
Gartner expects more competitors to enter the MXDP market in the coming years, particularly large application PaaS vendors that already target development teams for web, mobile and conversational use cases. Acquisitions of smaller best-of-breed mobile, conversational or immersive development vendors could also propel the acquirers into the MXDP market. We expect the market’s expansion to accelerate as the underlying technologies for PWAs, conversational and immersive apps mature over the next two to five years (see "Magic Quadrant for Multiexperience Development Platforms").

Evidence

Gartner’s 2020 CIO Survey was conducted online from 4 June 2019 through 5 August 2019 among Gartner Executive Program members and other CIOs. Qualified respondents were each the most senior IT leader (CIO) for their overall organization or for a part of their organization (for example, a business unit or region). The sample included 1,070 CIO respondents in 64 countries and across major industries (public and private), representing approximately $3.5 trillion in revenue/public-sector budgets and $67.5 billion in IT spending. The survey was developed collaboratively by a team of Gartner analysts, and was reviewed, tested and administered by Gartner’s Research Data and Analytics team.

Gartner’s 2019 Tech Innovation Study was conducted online from September 2018 through February 2019, with 273 innovation leaders in the U.S. and U.K. It explored effective approaches to innovation, including goals, enablers and inhibitors of innovation, and the importance of emerging technologies for meeting future innovation needs. Study participants either led an innovation program directly or had direct knowledge of, and involvement with, their organization’s innovation initiatives and strategies. A mix of industries at end-user organizations with revenue of at least $250 million participated, with the majority of respondents representing organizations with worldwide annual revenue of over $1 billion. The study was developed collaboratively by Gartner analysts and members of the Gartner’s Primary Research Team who follow innovation for enterprise architecture and CIOs.

Gartner’s 2019 Readiness for the Digital Workplace Survey was conducted online between 1 July and 29 July 2019 with 61 Gartner Research Circle Members — a Gartner-managed panel composed of IT and IT-business professionals. Participant organizations were required to have a formal digital workplace strategy in their organization. The survey was developed collaboratively by a team of Gartner analysts and was reviewed, tested, and administered by Gartner’s Primary Research Team.

1 Backends for Frontends
Notes

Note 1: Methodology

This document synthesizes select Gartner Peer Insights’ reviews, client inquiries and expert analyst opinion for 2018 and 2019. Gartner Peer Insights is a free peer review and ratings platform designed for enterprise software and services decision makers. Reviews go through a strict validation and moderation process in an effort to ensure they are authentic.

Technology selection is based on client interest, inquiries and Peer Insights’ reviews volume. All reviews and inquiries are classified, and volume is normalized to approximate the relative frequency of companies engaging with a given technology area. The analysis is intended to represent two indicators of the buyer needs in aggregate to inform customer-targeting strategy; specific buyers will have unique priorities, and specific vendors may attract different types of buyers. This should be considered in the context of other indicators to build a holistic view of technology emergence and growth.

Document Revision History

Technology Insight for Multiexperience Development Platforms - 21 February 2018

Recommended by the Authors

Transcend Omnichannel Thinking and Embrace Multiexperience for Improved CX
Use MASA to Deliver an Agile Multiexperience Enterprise Application Architecture
Market Guide for Conversational Platforms
Magic Quadrant for Multiexperience Development Platforms
Critical Capabilities for Multiexperience Development Platforms
Adopt a Mesh App and Service Architecture to Power Your Digital Business
Innovation Insight for Microapps
Quality Is the Key to Avoiding ‘Digital Distortion’ With Your Augmented Reality Strategy

Recommended For You

The Art of Building High-Performing Teams
Use Gartner's Maturity Model to Improve Customer Fulfillment
Rebalanced Technical Skills Portfolio (Nationwide)
Career Lattices for IT Workforce Versatility (Intel)
Defining Customer Segmentation for Service