

The Forrester Wave™: Mobile Development Platforms, Q4 2016

The 12 Providers That Matter Most And How They Stack Up

by Michael Facemire

October 24, 2016

Why Read This Report

In our 32-criteria evaluation of mobile development platform (MDP) vendors, we identified the 12 most significant ones — Amazon Web Services (AWS), AnyPresence, Appcelerator, IBM, Kinvey, Kony, Microsoft, Oracle, OutSystems, Red Hat, Salesforce, and SAP — and researched, analyzed, and scored them. This report details our findings about how well each vendor fulfills our criteria and where they stand in relation to each other to help application development and delivery (AD&D) professionals select the right partner for their mobile development platform needs.

Key Takeaways

Six Leaders Emerge, Driven By Developer Experience

Forrester's research uncovered a market in which Kinvey, Kony, Amazon Web Services, Microsoft, IBM, and Oracle lead the pack. Appcelerator, SAP, Red Hat, and OutSystems offer competitive options. Salesforce and AnyPresence lag behind.

AD&D Pros Seek Development Speed, Mobile Client Accelerators, And Data Normalization

The mobile development platform market is growing because more AD&D professionals see these platforms as a way to address their top challenges. This market growth is in large part due to the fact that AD&D pros increasingly trust platform providers to act as strategic partners, advising them on top mobile development decisions.

Data Acquisition, Analytics, And Future Experience Support Are Key Differentiators

As companies' mobile maturity increases, improved developer experience will dictate which MDP providers will lead the pack. Vendors that can effectively deliver data acquisition, analytics, and support for future mobile experiences position themselves to succeed in the mobile development platform race.

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Forrester conducted product evaluations in August 2016 and interviewed 12 vendors (and 36 of their customer references): Amazon Web Services, AnyPresence, Appcelerator, IBM, Kinvey, Kony, Microsoft, Oracle, OutSystems, Red Hat, Salesforce, and SAP.

Related Research Documents

- [The Forrester Wave™: Mobile Infrastructure Services, Q3 2015](#)
- [The Future Of Mobile Experience Development](#)
- [Vendor Landscape: Mobile Development Platforms](#)

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Mobile Development Platforms Address Maturing Mobile Demands

Mobile experiences are the baseline for modern digital interactions. Customers expect your company to appropriately meet their mobile moments with an application that evolves with their needs. And employee demands for mobile are not far behind. Not too long ago, this meant building a mobile app — often one that used data from a single source. But now, customers want an app that works with a mobile website and to have efficient interactions with your brand over Cortana, Facebook Messenger, Google Now, and WeChat. These experiences are not simple for AD&D pros to support, and they require multiple data sources.

Mobile Development Platforms Serve Two Distinct Types Of Buyers

Developer experience defines mobile development platform success and failure. This 2016 evaluation shows maturing functionality in the offerings. Yet, our interviews with customer references clearly show which vendors are becoming long-term partners and which offer tactical solutions wholly based on their developers' excitement for building digital experiences. A company's mobile development platform choice is indicative of how it is approaching its future digital development strategy.

Companies fall into two camps:

- › **Those that prefer an all-inclusive platform.** Companies favor these platforms if they are just beginning their mobile journey or they know they need a jump-start into mobile development and are unsure of the full set of challenges they'll face. This makes up the majority of platform spend today, though it's waning. IBM, Kony, Oracle, OutSystems, Salesforce, and SAP all offer comprehensive platforms but are beginning to offer service-by-service consumption models. Customers who buy an all-inclusive platform follow their vendor's prescription for mobile development and don't often diversify their mobile development spend elsewhere.
- › **Those that prefer to manage a collection of services.** Companies favor these pure, service-driven solutions if they have done some mobile development or have solutions for more than two of the eight categories listed below. Amazon Web Services and Microsoft are the pure-play vendors in this category, while AnyPresence, Appcelerator, Kinvey, and Red Hat are all back-end-as-a-service vendors that offer a service-by-service consumption model with platform value-adds on top.

Why Companies Buy: Mobile Development Platforms Accelerate Digital Experiences

Mobile development platforms share many common aspects. For instance, they all provide a way to expose data through APIs and build mobile websites and mobile apps with platform-supplied or partner tools. Our research shows that the differences occur in eight categories:

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1. **API platform support.** This functionality enables developers to create new APIs, build and host the implementations of these interfaces, and optimize the data that is sent to the mobile device.
2. **Analytics.** Analytics allows developers tools to garner business, engagement, and technology insights from the mobile experiences they create — along with a dashboard that displays actionable details.
3. **Application life-cycle management (ALM) integration.** This functionality provides API versioning governance managed through the mobile platform and takes the burden of doing this off of the development and operations (DevOps) teams.
4. **Deployment options.** These options include public, private, and hybrid cloud deployments along with on-premises solutions for companies with governance or regulatory requirements.
5. **DevOps support.** This enables developers to spin up a development environment to create a mobile experience on the platform and integrate enterprise fundamentals such as security and identity.
6. **Front-end development accelerators.** Some platforms provide native software development kits (SDKs) for Android and iOS, JavaScript libraries for the web, and cross-platform SDKs for Cordova or Xamarin.
7. **Support for future mobile experiences.** Some solutions support messaging platforms like Facebook Messenger, iMessage, and WeChat along with mobile OS features like Cortana, Google Now, and Siri.
8. **A developer portal.** Developer portals provide a place for developers to learn about the platform and what peer developers have built on the platform.

Mobile Development Platforms Evaluation Overview

To assess the state of the mobile development platforms market and see how the vendors stack up against each other, Forrester evaluated the strengths and weaknesses of top mobile development platform vendors. After examining past research, user need assessments, and vendor and expert interviews, we developed a comprehensive set of evaluation criteria. We evaluated vendors against 32 criteria, which we grouped into three high-level buckets:

- › **Current offering.** We evaluated API platforms (supported languages, supported programming styles [object-oriented versus functional], response types, offline solutions, data performance optimization, business user interactions, API modeling/ingestion, and ease of use), analytics (analytic archetypes, dashboard, and troubleshooting/debugging), ALM support (API versioning, version mapping, and build systems), deployment options (cloud, on-premises, and government and regulatory), DevOps (deployment flexibility and identity management), front-end tooling (native accelerators, web tooling, and analytics integration), future mobile experiences (messaging platforms and connected devices), and developer portals.

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- › **Strategy.** We evaluated each vendor's strategy on pricing transparency, vision, road map, and alliances.
- › **Market presence.** We evaluated each vendor's revenue, customer base, and customer acquisition and retention.

Evaluated Vendors And Inclusion Criteria

Forrester included 12 vendors in the assessment: Amazon Web Services, AnyPresence, Appcelerator, IBM, Kinvey, Kony, Microsoft, Oracle, OutSystems, Red Hat, Salesforce, and SAP. Each of these vendors has (see Figure 1):

- › **A breadth of product functionality and a road map for future development.** We evaluated vendors that provide services to build and manage APIs, provide analytics data for mobile experiences, integrate into existing software development life cycles, have cloud-hosting options, and feature flexible integration with front-end tooling. These vendors also have a road map and strategy to address the challenges that are quickly coming down the road.
- › **Typical client size of 1,000 employees or more.** Vendor platforms must be able to scale to large enterprises and support many developers working on many different mobile projects.
- › **A total of 150 or more current paying customers.** Vendor platforms must be viable in the market today.
- › **Total corporate revenue of \$5 million or more.** Vendors must be economically viable.
- › **Traction with Forrester clients.** We measure this traction by inbound requests to the analyst community that mention these platforms.

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FIGURE 1 Evaluated Vendors: Product And Vendor Information And Selection Criteria

Vendor	Platform	Product set within (if applicable)
Amazon Web Services	AWS Mobile Services	Amazon Cognito, Amazon Mobile Analytics, AWS Device Farm, AWS Mobile Hub, AWS Mobile SDK
AnyPresence	AnyPresence Enterprise Platform	
Appcelerator	Appcelerator Platform	
IBM	IBM MobileFirst Platform Foundation v. 8.0	IBM Bluemix
Kinvey	Kinvey Platform	
Kony	Kony Mobility Platform	
Microsoft	Comprised of product set	Azure App Service, CodePush, HockeyApp, Intune, PowerApps, Visual Studio 2015, Visual Studio Code, Visual Studio Team Services, Xamarin Studio, Xamarin Test Cloud
Oracle	Oracle Mobile Cloud Service v. 2.0	Oracle Developer Cloud Service, Oracle JavaScript Extension Toolkit, Oracle Mobile Application Accelerator, Oracle Mobile Application Framework
OutSystems	OutSystems Platform	
Red Hat	Red Hat Mobile Application Platform	
Salesforce	App Cloud	Force.com, Heroku Enterprise, Lightning, Mobile SDK, Salesforce1
SAP	SAP Mobile Platform 3.0 SP11	SAP Hana Cloud Platform, mobile service; SAP Web IDE

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FIGURE 1 Evaluated Vendors: Product And Vendor Information And Selection Criteria (Cont.)

Vendor inclusion criteria

1. Product functionality includes providing services to build and manage APIs, providing analytics data for mobile experiences, integrating into existing software development life cycles, having cloud-hosting options, and flexible integration with front-end tooling.
2. Typical client size of 1,000 employees or more
3. A total of 150 or more current paying customers
4. Total corporate revenue of \$5 million or more
5. Traction with Forrester clients

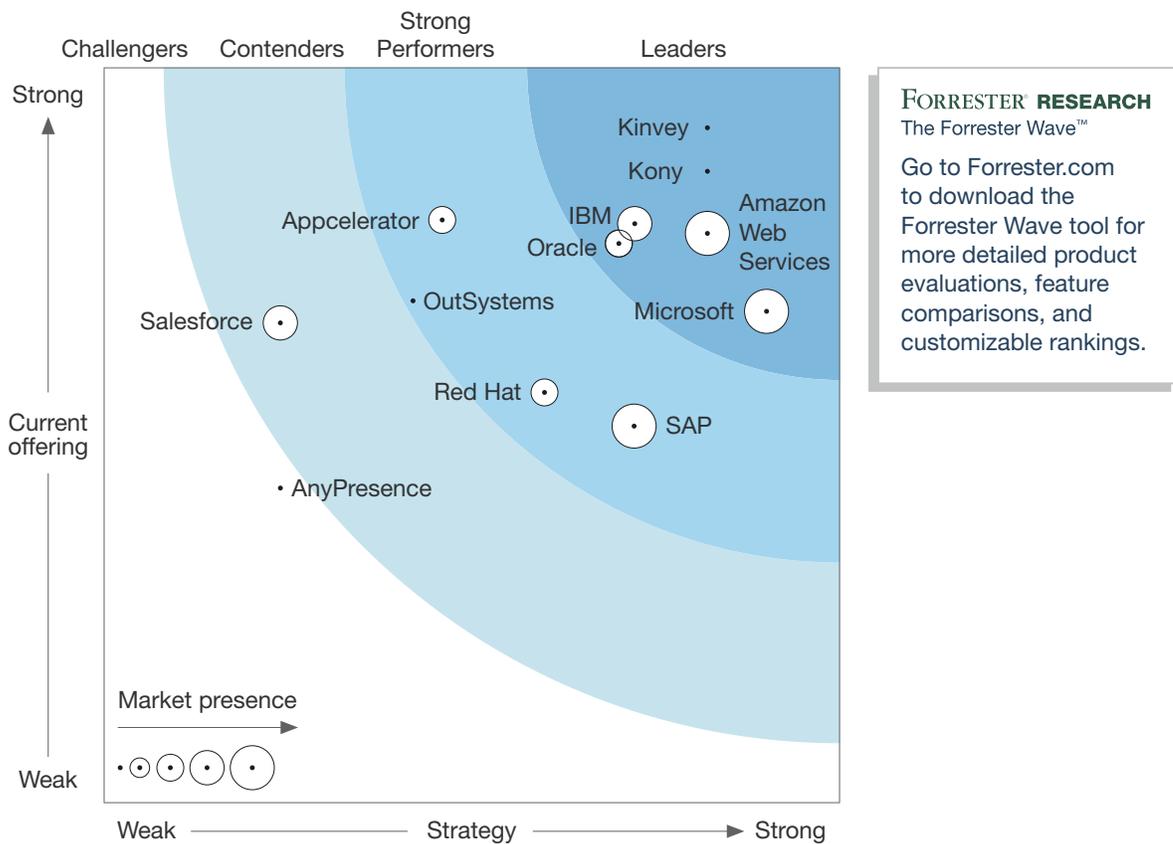
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Vendor Profiles

The following pages consist of evaluation overviews for every vendor in this Forrester Wave™. This evaluation of the mobile development platform market is intended to be a starting point only. We encourage clients to view detailed product evaluations and adapt criteria weightings to fit their individual needs through the Forrester Wave Excel-based vendor comparison tool (see Figure 2).

FIGURE 2 Forrester Wave™: Mobile Development Platforms, Q4 '16



The Forrester Wave™: Mobile Development Platforms, Q4 2016

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FIGURE 2 Forrester Wave™: Mobile Development Platforms, Q4 '16 (Cont.)

	Forrester's weighting	Amazon Web Services	AnyPresence	Appcelerator	IBM	Kinvey	Kony	Microsoft	Oracle	OutSystems	Red Hat	Salesforce	SAP
Current offering	50%	3.87	2.13	3.95	3.92	4.58	4.28	3.33	3.79	3.40	2.78	3.25	2.55
API platform	10%	3.50	4.00	2.55	4.10	5.00	5.00	3.70	3.15	4.50	2.75	4.00	2.45
Analytics	30%	2.60	1.80	4.20	3.80	5.00	4.60	1.40	4.20	3.80	1.80	3.00	1.80
Application life-cycle management support	5%	3.80	3.80	4.30	3.50	5.00	5.00	3.50	4.30	4.20	2.45	3.00	4.30
Deployment options	5%	3.05	5.00	4.25	3.30	4.50	5.00	3.80	2.05	5.00	3.75	3.05	5.00
DevOps	5%	5.00	5.00	4.00	5.00	5.00	5.00	4.00	5.00	5.00	5.00	5.00	4.00
Front-end tooling	10%	5.00	3.50	3.60	4.30	5.00	5.00	3.25	5.00	5.00	3.50	3.50	3.50
Future mobile experiences	30%	5.00	0.00	4.00	4.00	4.00	3.00	5.00	3.00	1.50	3.00	3.00	2.00
Developer portal	5%	3.00	3.00	5.00	3.00	3.00	5.00	3.00	5.00	3.00	3.00	3.00	3.00
Strategy	50%	4.10	1.20	2.30	3.60	4.10	4.10	4.50	3.50	2.10	3.00	1.20	3.60
Pricing transparency	10%	5.00	3.00	5.00	3.00	5.00	5.00	3.00	5.00	3.00	3.00	3.00	3.00
Vision	15%	5.00	3.00	3.00	3.00	5.00	5.00	3.00	5.00	3.00	3.00	3.00	3.00
Road map	45%	3.00	1.00	3.00	3.00	3.00	3.00	5.00	5.00	3.00	5.00	1.00	3.00
Alliances	30%	5.00	0.00	0.00	5.00	5.00	5.00	5.00	0.00	0.00	0.00	0.00	5.00
Market presence	0%	5.00	0.30	2.30	3.50	0.85	1.00	4.60	2.80	1.00	2.70	3.50	4.60
Revenue	35%	5.00	0.00	1.00	5.00	0.00	1.00	5.00	5.00	1.00	3.00	5.00	5.00
Customer base	55%	5.00	0.00	3.00	3.00	1.00	1.00	5.00	1.00	1.00	3.00	3.00	5.00
Customer acquisition and retention	10%	5.00	3.00	3.00	1.00	3.00	1.00	1.00	5.00	1.00	0.00	1.00	1.00

All scores are based on a scale of 0 (weak) to 5 (strong).

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Kinvey, Kony, Amazon Web Services, Microsoft, IBM, And Oracle Are Leaders

- › **Kinvey is the class of the back-end-as-a-service market.** At one point in 2013, Forrester had cataloged 42 mobile back-end-as-a-service vendors. Today, only two stand alone in this evaluation — AnyPresence and Kinvey. Kinvey is succeeding due to its focus on providing an outstanding developer experience. The company's lone weakness in its current offering scores is support for a private corporate developer portal.

Kinvey's vision for this space is on par with the most forward-looking and aggressive companies in the market. The platform accelerates developer output and is now putting heavy focus on doing the same for operations teams with advanced analytics, termed "operational intelligence." Kinvey's road map backs this strong vision.

Customers we interviewed spoke highly of Kinvey and consider it a partner, not a vendor. One reference told us, "We work with many vendors, but Kinvey is one of the very few partners that we have." The accolades were equally high when customers spoke about the company's solution architecture team. They mentioned that enterprise data integration was hard with previous versions of the platform, but that Kinvey has since resolved these shortcomings. Finally, one customer stated that Kinvey isn't its mobile back-end-as-a-service, but its enterprise back-end-as-a-service.

Kinvey is best for companies that simply use the platform, not manage it. Customers that don't manage the platform obviate the need for many full-time infrastructure people. Kinvey has evolved from its early focus on individual developers and small and medium-size businesses, as it now has both a business edition (priced one app at a time) and an enterprise edition without a cap on mobile experiences. Its biggest challenge in the marketplace is selling against the heavyweights, but the platform functionality keeps pace with them all.

- › **Kony Visualizer is a key differentiator in the market.** Visualizer is the most versatile front-end experience-creation tool that this market offers today. It acts as a design tool, a quick proof-of-concept/mockup tool, a business developer framework, and a full professional development environment. The current offering would benefit from additional integrations with existing DevOps environments.

Kony has built its forward-looking strategy on a strong product and partnerships. The separation of the front end from the back end has enabled it to partner with firms like Cognizant to bring the platform to a much larger audience. This strategy only lacks in addressing the customers who want a service-by-service approach to mobile.

Customers we spoke with are excited about Kony's separation of the front-end tools (Visualizer) and the back-end service (MobileFabric). They also praise the latest version of the platform; one customer stated that "the previous version of Kony had a high learning curve, but once you got it, it created a lot of efficiencies — the latest version is much easier to get up to speed with." Customers raised concerns about debugging apps running on MobileFabric in the cloud, which they addressed with a workaround: debugging the same experience on an on-premises instance.

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Kony is best fit for companies that need mobile support in multiple areas of their systems development life cycles (SDLCs). Mobile developers know Kony — because they have used the platform themselves, have been a part of an evaluation, or have peers who have used it. During a two- to three-year period leading up to 2015, developers weren't kind with their thoughts about Kony, but the platform has rebounded well, both in product offering and current customer sentiment.

- › **Amazon Web Services is a growing giant on the mobile back end.** Amazon Web Services didn't have an offering in our 2015 mobile infrastructure services Forrester Wave, but it made a grand entrance this year due to its strength in quantity of services (five in the Mobile Hub and 55 overall) and ease of integration with existing corporate DevOps and ALM offerings.¹ Mobile analytics was the least mature area of the platform, and a focus on developer tooling will benefit Amazon Web Services in the future.

Mobile Hub is the first step toward a broader service offering. Amazon Web Services' vision is to provide all of the services a company needs to build a digital experience — mobile or otherwise. Customers share this vision, as they often start with Mobile Hub but quickly expand their consumption to the rest of the AWS service offering. The product's only weakness is its inability to make its service appeal to a traditional buyer who wants a fully managed mobile offering.

Customers we spoke with said they like Amazon Web Services' service buffet-style model. The Mobile Hub set of services acts as a gateway to the full set of web services. One customer stated that "once you get the hang of AWS, you don't even use the Mobile Hub." This power was limited to the back end, as customers rarely used support for front-end development. Customers are driven by the functionality of the individual services, not by cost, but some customers struggle with a pricing model that doesn't allow them to budget for a year in advance.

AWS is the best fit for companies willing to support mobile initiatives with a set of services instead of a single, managed product. These are not always limited to AWS — its API-driven nature allows customers to model a best-of-breed approach for their back-end architecture.

- › **Microsoft focuses on the front end but has back-end holes to fill.** Microsoft's acquisition of Xamarin gives it ownership of the strongest mobile cross-platform framework among companies in this evaluation. Microsoft has been integrating this platform into the robust Visual Studio platform for less than a year, so it should only get stronger, but the company would benefit from additional back-end integration with these tools as well as integration of the Azure back end with Android Studio and Xcode.

Microsoft's road map and partnerships point to a strong future. The company focuses on enabling developers to create digital experiences with any language, anywhere. This is evident in its recent support for JavaScript and its support for building experiences on non-Microsoft devices. Microsoft's scores will increase as the Azure platform builds mobile back-end parity with the other service-led offerings.

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While customers we spoke with praised Microsoft's front-end development solutions, they aren't jumping into its back-end Azure solutions with equal verve. They are building cross-platform solutions with the Visual Studio tools, using both Cordova (an Apache open source project) and Xamarin, but their usage of Azure on the back end is very limited to date. Customers spoke highly of Visual Studio Code, the latest text editor from Microsoft.

Microsoft is the best fit for existing Microsoft shops — for now. Its Azure cloud services consistently score well in Forrester Waves, and the front-end developer tooling is growing stronger through both acquisition and internal development. Additionally, many parts of the platform are now open sourced, eschewing the legacy Microsoft model of pure vendor lock-in. Net shops looking for front-end mobile accelerators should definitely consider the Microsoft solution, while the Azure back end is a fit for mobile projects for all companies.

- › **IBM gains ground as it shifts to the cloud.** The cloud is the future of mobile development and application delivery, and IBM is currently making that shift. The MobileFirst Foundation on-premises offering was once the most full-featured of IBM's solutions, but the Bluemix cloud solution is now functionally equivalent, driving IBM's move to the Leaders category. IBM could do more to make its analytics data easier to use by putting all types (technology, business, and engagement) on a single screen.

IBM's vision for the future does not have obvious holes that customers will need to fill based on their needs today. And it has forward-looking capabilities with OpenWhisk, a functional application environment. The ability to integrate these, along with both internal and customer-owned tooling, will define its success moving forward.

Customers we spoke with most often use support when building the initial apps on the platform. But they noted that the user interfaces on Bluemix lacked polish in many areas. Customers cited the openness of the platform as a reason for purchase, particularly its front-end tooling partnerships with Cordova and Ionic.

IBM is best fit for shops that focus on data integration, especially complex integration scenarios. Data access, powered by a strong API ecosystem, accelerates mobile development. IBM has been strong in the data integration space for years and integrates well with its own tools like API Connect, DataPower, and Integration Bus.

- › **Oracle makes an impact with room to grow in deployment options and analytics.** Oracle has only been in this market for a year, but it has made an immediate impact with over 150 customers already on the platform. Analytics was a pain point in the 2015 mobile development platforms Forrester Wave, but Oracle is actively growing these capabilities. Its developer experience is impressive. Oracle built Mobile Cloud Service (MCS) for the cloud, and customers can deploy it on-premises, albeit with an Oracle Cloud Machine — which is prohibitively expensive for a single Oracle solution.

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Oracle's vision and road map set the pace in this market. It realized that the previous offering (ADF Mobile) was not meeting customer needs. The team at Oracle built MCS from the ground (or cloud) up to meet today's needs, and it already has plans and near-term road map items to address the future of mobile experiences. It is the youngest offering in the market, which means there are some partnership gaps.

Customers we spoke with have responded well to the new Mobile Cloud Service. One noted that "Oracle understands our unique enterprise needs and fits well within our existing tools." Customers did express concerns regarding the flexibility of the security solution integration, as the identity and access management suite is on-premises-only, and they've worked with Oracle professional services to remedy this. Customers are putting MCS at the center of their digital experience architecture. As one reference put it, "All our digital assets will be connected through the MCS platform."

Oracle is best for cloud-first shops, especially existing customers. The cloud is the future of mobile development and experience delivery, and MCS is built for that exact environment and for those who want a modern architecture.

Appcelerator, SAP, Red Hat, And OutSystems Are Strong Performers

- › **Axway's Appcelerator integration plans are still a work in progress.** Appcelerator was one of the few back-end-as-a-service vendors in our 2015 mobile infrastructure services Forrester Wave and has since been acquired by Axway, a full life cycle API management vendor.² The addition of Appcelerator allows Axway to broaden its offering to both front- and back-end developers, but the product integration with the overall API offering is incomplete.

Appcelerator's strategy leverages a strong ecosystem. Its product is built by developers for developers, and those strengths are evident all around; it has one of the most robust command-line interfaces in the market, every element in the system can be accessed with an API, and it even exposes custom analytics queries as APIs so that other products can consume them. Appcelerator's vision for the future is on par with the industry, but the company lacks partners that could benefit the overall SDLC, so customers will need to fill those gaps on their own.

Customers we spoke with are starting to use Arrow — the back-end tool — but this growth has not caught up to the front end. Customers did note some concerns about cost, like which features were included in each pricing package. This is to be expected during the corporate transition.

Appcelerator is a best fit for companies that need to build cross-platform solutions. It is known for its front-end tooling, but it's growing a back-end business. Titanium was one of the first solutions to transform JavaScript into native apps, which is desirable for those who want to build cross-platform solutions. Customers have not all moved to Arrow, but the integration with the Axway product suite should accelerate this.

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- › **SAP is web-first, but its Apple partnership shows it can build native experiences.** SAP has a history of “function-over-form” user interfaces, both for the web and in the early days of mobile. Fiori changed that model, providing pleasant web user experiences that are extending to the mobile web and now native apps with the Apple partnership. But it is still weak as an on-premises digital API platform, where SAP guides customers to the Apigee partner product.

SAP has struggled in the past to provide prescriptive paths through its many mobile solutions — and none of them had UX appeal. But its current vision is stronger than in the past, and the road map is aggressive. Fiori was the beginning of a simpler, direct path — its vision and road map include the SAP Build product, which is a marked change from the past. SAP must execute on this road map and build a partner channel that marries up with this newfound strategy.

Customers we spoke with see value in using the SAP mobile platform as an API gateway. Some of them expressed concerns about the upgrade paths from previous versions of the platform, and they alleviated them by installing side-by-side instances to ensure no downtime in transition, but SAP should not require this level of redundancy on upgrades. Many customers only used the back-end SAP services and outsourced front-end design and development.

SAP is best fit for companies building experiences on SAP data. SAP realizes that mobile success is driven by a great experience, and it is taking action based on recently released products, along with those in beta and on the future road map. Its mobile platform should be a consideration today for companies that are building a functional mobile experience on SAP data, but in the future, it will be much more encompassing of all mobile experiences.

- › **Red Hat has used the best of FeedHenry to create an open source mobile platform.** Red Hat has fully integrated the FeedHenry acquisition into its portfolio of enterprise-class open source software solutions. It builds on a Node.js core — the modern, high-scale, open source application delivery platform — and adds all of the baseline mobile requirements, with strength in DevOps and front-end tooling integrations. It has average capabilities in business developer tools, analytics, and ALM integration.

The mobile application platform is in transition from one built for a discrete environment to one built on the Red Hat OpenShift Container Platform, which is the future of the Red Hat mobile platform. This will allow deployments to any OpenShift platform (both public and private cloud instances) and enable better integration with the larger Red Hat portfolio. Red Hat needs to further build its partner channel to fill customer gaps in design and portfolio management.

Customers we spoke with are drawn to an open mobile development platform. They also like that the platform is built on Node.js, but some references were concerned that it was a previous version of Node that caused issues with current npm modules. Customers also like how customizable the platform is. One customer stated, “The platform has a lot of things that can help you get going quickly, but you can also shape the platform to explicitly meet your needs.” Customers found value-added services like logging and monitoring sticky, which kept them using the platform, but some would prefer usage pricing as opposed to the subscription model.

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Red Hat is the best fit for customers who want an open source platform. While the platform is growing, it is experiencing growing pains. The transition to OpenShift is a positive one, but one that has slowed its growth in the market, as evidenced by its move from the Leaders to the Strong Performers group in this year's evaluation. We anticipate its growth to continue upon completion of the platform rebase on OpenShift.

- › **OutSystems takes a different approach to the mobile development challenge.** Many developers consider model-driven tools to be “toys” that can't compete with a full-fledged integrated development environment. This is true for many of them, but OutSystems has won over a number of front-end developers and built a set of back-end services that hold their own with the others in this Forrester Wave. The back-end growth is impressive, but it stops short of being a full-featured general API platform.

OutSystems' strategy and product road map are on par with the industry. It leverages the power of its low-code tool, and it highlights the time-to-market improvements customers gain and then introduces a set of back-end services to support these experiences. The vision is to expand in both directions, which will enable it to continue being a viable mobile development platform offering, but a lack of robust partnerships hurts its overall strategy score.

Customers we spoke with said they like how quickly they can build mobile apps on OutSystems. One customer cited a 30% to 60% reduction in time required to fully construct an experience. Some of them mentioned that their developers were a bit wary when introduced to a model-driven development tool, but after using it, they enjoyed building apps on it. Customers are building highly performant apps (one supports over 500,000 users), but usage of the OutSystems back-end features is still limited in client shops.

OutSystems has promoted the platform as a way to quickly build front-end experiences. But customers shouldn't overlook the full suite of services, as it finished in the middle-third or higher in nearly every current offering criterion. OutSystems is best fit for companies looking for an integrated, model-driven front-end tool. But firms that don't have an urgent need for a full-featured, back-end-only platform, and can be patient and grow with the platform, should consider it as well.

Salesforce Is A Contender

- › **Salesforce best supports experiences based on Salesforce data, but not others.** Salesforce offers configurable and platform-as-a-service (PaaS) solutions. The Salesforce1 app enables both professional developers and business users of the Salesforce platform to build a mobile view into an otherwise *web* experience. But it struggles compared with other mobile platforms in terms of building mobile experiences outside of the Salesforce ecosystem. It is open sourcing Lightning — the web components-driven, front-end development library — which is a bright spot in the offering.

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Salesforce's strategy envisions a future where companies will federate their data in the Salesforce cloud, using Salesforce Connect as a proxy to existing data. Its road map puts heavy emphasis on Lightning as a front-end JavaScript framework, which it is actively open sourcing. This strategy will bring it closer to the group of mobile-focused offerings, but it still has a long hill to climb to be a primary consideration for a company's complete portfolio of mobile experiences.

Customers we spoke with said they like the simplicity of building on Salesforce1. Those already on the Salesforce platform enjoy the ease with which they can enable existing workflows in the Salesforce1 mobile app. We were unable to talk with any customers who invested in the Salesforce platform purely for mobile, but those already invested in the ecosystem lauded the ease of deploying applications to Heroku (the Salesforce PaaS platform). Customers noted the high cost of Heroku, but they were able to offset this cost by repurposing existing infrastructure employees to other value-added work. Some customers reported using a separate mobile development platform for non-Salesforce-driven experiences.

Salesforce1 is a strong option for companies looking to enable a rapid mobile experience on Salesforce data (or data proxied through Salesforce Connect). Similarly, developers can use Heroku to build any digital experience, but the lack of front-end mobile accelerators common to full-fledged mobile development platforms currently limits it to existing Salesforce customers.

AnyPresence Is A Challenger

- › **AnyPresence has a unique approach to mobile back ends but is still immature.** Customers use a web-based designer to create the precise set of services and connectors necessary for a given mobile experience, which generates a mobile back end that a customer can deploy anywhere. It also allows customers to configure options on a prebuilt solution running either on-premises or on a predefined cloud. AnyPresence struggles to maintain parity in the market due to its size and company maturity. It knows what the market needs and meets the basic customer requirements, but below-average scores in API offering and analytics reflect this reality.

AnyPresence's position as a Challenger in this report has more to do with its subpar vision and road map than its current offering. Its road map meets the needs of customers but does not challenge the industry to change direction based on any planned updates to its platform.

Customers we spoke with value that they can run the AnyPresence platform on-premises but struggle with parts that still require the cloud, like the AnyPresence Designer. They lauded the AnyPresence in-house development team as top-notch — at times building complete apps for customers on the platform. Companies don't use AnyPresence as their only mobile back-end solution; most described using it alongside other offerings.

AnyPresence is a best fit for customers who want flexibility in deployment options. Forrester recommends using the cloud as the aggregation tier for mobile experiences, but some customers cannot do this due to governance or regulatory requirements. AnyPresence solves this problem by generating a back end that can run on any cloud or on-premises.

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Supplemental Material

Online Resource

The online version of Figure 2 is an Excel-based vendor comparison tool that provides detailed product evaluations and customizable rankings.

Data Sources Used In This Forrester Wave

Forrester used a combination of data sources to assess the strengths and weaknesses of each solution. We evaluated the vendors participating in this Forrester Wave, in part, using materials that they provided to us by July 12, 2016.

- › **Vendor surveys.** Forrester surveyed vendors on their capabilities as they relate to the evaluation criteria.

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- › **Product demos.** We asked vendors to conduct demonstrations of their products' functionality. We used findings from these product demos to validate details of each vendor's product capabilities.
- › **Executive strategy briefings.** We asked vendors to conduct a strategy briefing with executives to collect company strategy and positioning information. We used the information in the briefings to provide insight on the vendor's product background, positioning, value proposition, customer base, and strategic vision.
- › **Customer reference calls.** To validate product and vendor qualifications, Forrester also conducted reference calls with three of each vendor's current customers.

The Forrester Wave Methodology

We conduct primary research to develop a list of vendors that meet our criteria to be evaluated in this market. From that initial pool of vendors, we then narrow our final list. We choose these vendors based on: 1) product fit; 2) customer success; and 3) Forrester client demand. We eliminate vendors that have limited customer references and products that don't fit the scope of our evaluation.

After examining past research, user need assessments, and vendor and expert interviews, we develop the initial evaluation criteria. To evaluate the vendors and their products against our set of criteria, we gather details of product qualifications through a combination of lab evaluations, questionnaires, demos, and/or discussions with client references. We send evaluations to the vendors for their review, and we adjust the evaluations to provide the most accurate view of vendor offerings and strategies.

We set default weightings to reflect our analysis of the needs of large user companies — and/or other scenarios as outlined in the Forrester Wave evaluation — and then score the vendors based on a clearly defined scale. We intend these default weightings to serve only as a starting point and encourage readers to adapt the weightings to fit their individual needs through the Excel-based tool. The final scores generate the graphical depiction of the market based on current offering, strategy, and market presence. Forrester intends to update vendor evaluations regularly as product capabilities and vendor strategies evolve. For more information on the methodology that every Forrester Wave follows, go to <http://www.forrester.com/marketing/policies/forrester-wave-methodology.html>.

Integrity Policy

We conduct all our research, including Forrester Wave evaluations, in accordance with our Integrity Policy. For more information, go to <http://www.forrester.com/marketing/policies/integrity-policy.html>.

Endnotes

¹ For more information, see the “[The Forrester Wave™: Mobile Infrastructure Services, Q3 2015](#)” Forrester report.

² For more information, see the “[The Forrester Wave™: Mobile Infrastructure Services, Q3 2015](#)” Forrester report.

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