



Sector Roadmap: cross-platform mobile development

Rich Morrow

a mobile report

Sector Roadmap: cross-platform mobile development

10/30/2014

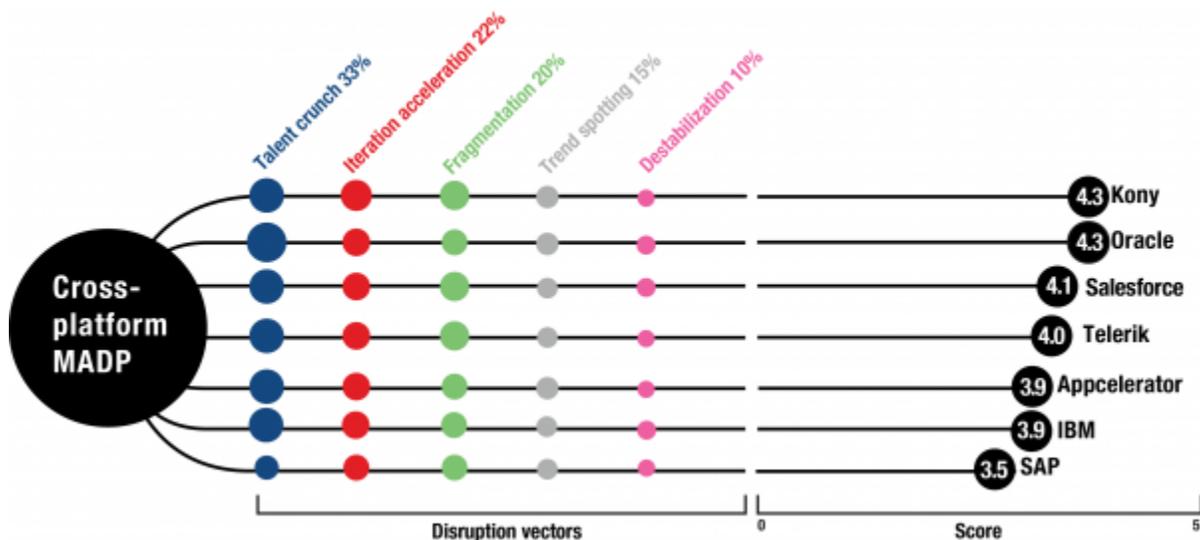
TABLE OF CONTENTS

1. EXECUTIVE SUMMARY
2. INTRODUCTION
3. METHODOLOGY
4. DISRUPTION VECTORS
5. COMPANY ANALYSIS
6. OUTLOOK AND KEY TAKEAWAYS
7. ABOUT RICH MORROW
8. ABOUT GIGAOM RESEARCH
9. COPYRIGHT

Cross-platform mobile app development is already complicated. However, due to the dizzying pace of mobile fragmentation it will become substantially more difficult over the coming years. As a result, the future plans of mobile development vendors are far more important than the toolsets those developers currently offer. This Sector Roadmap™ identifies five Disruption Vectors — forces with the potential to reshape the market and demands for mobile application development platforms — and evaluates a number of different vendor approaches in light of those forces.

Key findings in this Sector Roadmap include:

- The “talent crunch” will continue to be largest factor influencing adoption of a - platform. -
- Platforms that provide full end-to-end solutions from the integrated development environment to the back-end offer the most benefits for developer productivity and security.
- Open and pluggable approaches are best-suited to take advantage of the rapid changes likely to continue in the mobile space.
- Network speed, MBaaS, analytics, and other factors can dramatically affect end user experience and developer productivity.
- Most vendors have their eyes on the IoT space and can offer a consolidated approach to deploy apps into yet-unknown platforms and form factors.



Key:

- Number indicates a company's relative strength across all vectors
- Size of ball indicates a company's relative strength along an individual vector

Source: Gigaom Research

Thumbnail image courtesy: [iStock/Thinkstock](#)

Introduction -

Many vendors in the cross-platform Mobile Application Development Platform (MADP) market began by offering only one layer of a full end-to-end stack. Most commonly, they began with an IDE, and built out complementary services, but sometimes, vendors began with a scalable, secure [back-end](#) and worked toward the IDE. It is this “full stack” offering that separates a true platform from a toolkit. The one-stop shopping model resonates well with technology buyers, and this full stack approach – especially integration to the “fourth tier” or data back-end – is becoming commonplace. As vendors have rushed to build out their offerings into full platforms, the space has become somewhat crowded and individual products appear to provide very similar solutions to common problems.

Vendors reviewed and scored in this report represent a wide variety of approaches to cross-platform app delivery and maintenance. Each one is defined by most of the following features.

- - **Write once, deploy to several native codebases.** Currently, Android and iOS are must-have target platforms, but many MADPs also currently deploy to alternate device platforms, or have this capability on their product roadmap. Among those alternate platforms, vendors ranked Windows Phone ranked highest, while Blackberry ranked second, and desktop apps third.
- - **Tight integrations to back-ends or middleware.** These solutions are an obvious choice for companies already invested heavily in a vendor’s services or back-ends. - Most vendors also offer their development tools as standalone products, and do not force the vendors other products into the overall platform. -
- - **A focus on specific use cases.** Although most MADPs enable creation of any type of app, some focus heavily on a given use case. Currently, those use cases are primarily point-and-click business to employee (B2E) apps for executives, IT support, and marketing staff. For example, Adobe’s Experience Manager (AEM) product targets marketing departments looking to create and manage mobile interactions with customers without involving IT. These platforms can super-charge app builds for a particular use case, but because of their specialized focus, they require a company to make additional investments for departments with more general MADP needs.
- - **Consistent “app identity.”** Most organizations building cross-platform mobile apps today no longer attempt to achieve native UI experiences on each device, instead striving for a consistent UI for their apps across all consumption methods. This has certainly bolstered use cases for MADPs, and the use of consolidated app skins makes app delivery much quicker. For apps requiring them, vendors have greatly improved

support for native UI capabilities , and low-level design elements like buttons, lists, and the like now work well in nearly all tools.

- **-Support for popular coding environments.** To leverage existing web developer skillsets and still provide native or near-native responsiveness, most platforms have moved to a model of “develop in HTML, JavaScript and CSS, compile to native.” Other MADPs focus on a specific language like .Net or Ruby, while yet others offer a blended approach, allowing developers to choose among many different languages and technologies.
- **-Native device support.** For MADPs leveraging the HTML / JavaScript / CSS - approach, nearly all have standardized on Apache Cordova (the open source fork of - Adobe PhoneGap) to provide interaction with and access to native device sensors. - Cordova support also implies the ability to re-use the ever-expanding library of - plugins, reducing the overall coding effort to deliver an app. -

The MADP space encompasses a swath of products, including IDEs, mobile UI frameworks, authentication, data access, web frameworks, mobile messaging, and [MBaaS](#). Although many individual products exist for each one of these options up and down that stack, our analysis strictly focuses on cohesive platforms that provide all or most of these services in some fashion. That said, no discussion of MADP would be complete without calling attention to the critical aspects of the foundational MBaaS layer.

With so much development time spent on the minutiae of back-end mobile functionality, it’s no surprise that the MBaaS space is heating up. In the simplest definition, an MBaaS solution simply wraps data access and/or application services (like push notifications) in a RESTful API that developers can easily plug into from SDKs. There are many vendors that provide MBaaS only, and although those solutions alone are viable and well worth investigation, they were not part of this analysis. But this report does take into consideration the reality that developers may well want to use a third-party MBaaS solution, and pluggability of this layer should be high on a developer’s requirements.

Though they vary greatly in their approaches, capabilities, and focus, the one commonality among MADPs offerings is the ability to more quickly create and maintain the vast majority of apps. The current generation of MADPs focuses heavily on the B2E space, but offerings run the gamut of price points and features, and are suitable for nearly any use case.

Methodology -

For our analysis, we have identified and assessed the relative importance of five Disruption Vectors. These are the key technologies and forces that will affect the markets in which vendors will strive to gain advantage.

The following section features a visualization of the relative importance of each of the key Disruption Vectors that Gigaom Research has identified for the cross-platform mobile development marketplace. We have weighted the Disruption Vectors in terms of their relative importance for the most common use cases, but potential customers can create their own weightings that accurately describe their needs.

Gigaom Research's analysis process also assigns a 1 to 5 score to each company for each vector. The combination of those scores and the relative weighting and importance of the vectors drives the company index across all vectors.

Disruption vectors -

For our analysis of the cross-platform mobile development space we have identified five key trends — or disruptions vectors — that will likely shake up the marketplace in the next 24 months. As developers respond to these vectors, they will create opportunities for vendors to meet this new set of needs and, ultimately, compete for market share.

The five key disruption vectors are:

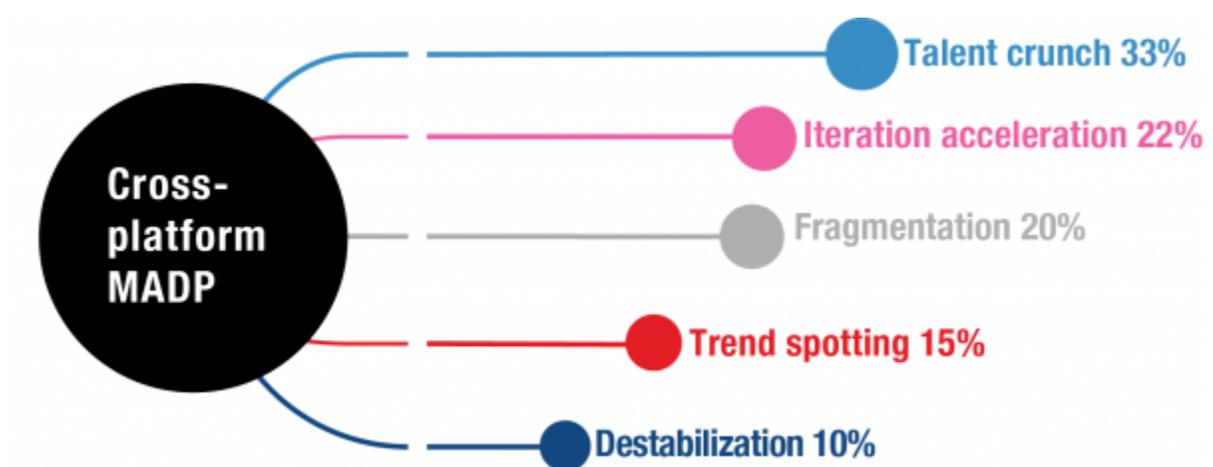
Talent crunch. The shortage of mobile developers with specialized skill sets

Iteration acceleration. An increasing application-release cadence

Fragmentation. A greater number of MADP components

Trendspotting. A need for responsive and predictive analytics to identify user and application trends early

Destabilization. An increased likelihood of security breaches



Key: vector weighting sums to 100%

Source: Gigaom Research

Talent Crunch

The current shortage in mobile expertise is likely to continue. For many companies, support for common, crossover skillsets is the most critical factor in choosing a mobile platform. As users continue to shed web-centered interactions in favor of mobile ones, companies look toward platforms based on technologies that their web-savvy development teams know well. These require little retraining, and developers typically have extensive code libraries already built.

HTML5 is rapidly becoming the de facto standard for cross-platform mobile app interfaces, and Javascript is devouring the market for the logic layer. For anyone contemplating the viability of the HTML, Javascript, CSS approach to mobile development, it's important to reflect on two recent developments. One is the maturity of those technologies themselves. The other is the power of the devices running those technologies. With the wide implementation of PhoneGap and its open-source cousin Cordova, developers now have access to a large library of plugins that allow access to native device sensors like cameras or accelerometers, which greatly improves development time. Additionally, a few years of Moore's Law have rendered doggedly slow devices much more capable and able to handle even hybrid apps with near-native speed.

Arguably, the HTML, JavaScript, and CSS environment will continue to be the most appealing for most companies, as evidenced by the majority of MADP providers shifting towards these technologies. Still, many organizations also make extensive use of Java, .Net or other languages either in place of or, more commonly, in addition to web-centric technologies. The platforms that support multiple development approaches in both high level and web languages allow for the greatest developer adoption and business agility, and as such, will rank highest in this category.

Iteration Acceleration

Throwing more things against the wall "to see what sticks" has long been standard procedure for software development. This will become more pronounced in the mobile space as continuous deployment, rising opportunity costs, and the short attention span of mobile users push developers toward an even faster release cadence. An MADP makes developers more productive by allowing them to write code once and deploy to many platforms. Sometimes, however, platforms go far beyond that by offering advanced point-and-click mobile app creation capabilities, providing even executives and non-developers with the ability to create and deploy mobile apps.

Most of the platforms aim to remove 70 to 90 percent of the coding effort; the less code developers write, the faster they can release new features and bug fixes. Code re-use,

especially among apps, is another key reason to use MADPs. Again, some platforms are better than others. Certain platforms even integrate test automation and debugging capabilities, from inside the IDE and across many independent devices in the cloud.

Additionally, many platforms offer a full, end-to-end approach, allowing integration to mobile back-ends. An ideal platform that provides the most agility offers a tailored experience based on the user's abilities and desired IDE — convenience by default, with the ability to control when needed. Platforms that allow developers (and non-developers) to most quickly create and maintain apps in their IDE of choice and with easy integration to pluggable mobile back ends (both vendor and non-vendor provided) were given the highest marks against this vector.

Fragmentation

The mobile space is defined by heavy fragmentation, iteration, and competition. Combined with the fact that mobile app development is still in its infancy, this means that players come and go frequently, and that technologies leapfrog each other at a much more rapid pace than in the web and desktop eras. From the IDE to network, security, and back end, it's a free-for-all slugfest amongst vendors. A successful MADP needs to keep its options open as best-of-breed solutions come and go for every layer of the mobile stack.

To address the fact that mobile developers spend upwards of 30 to 60 percent of their time performing testing of both the app and its back-ends across a potentially heavily fragmented stack, some vendor products include a suite of deep testing and QA capabilities aimed at catching and fixing bugs faster.

Many MADP vendors (particularly those aiming for the enterprise) attempt to provide a consolidated, integrated experience in the form of vendor-provided solutions for every touch-point in the stack. Vendors with entrenched products in one layer (particularly the back-end layer) will normally have tighter integrations and more support for their products. Buyers, however, are advised to be wary of vendors that try to shoehorn the customer into their own solutions and away from other vendor solutions at any layer.

Although “locked-in,” full-stack solutions may appear to be a panacea, without support of a pluggable architecture these solutions could become an anchor, forcing dev teams to ramp up on new systems or IDEs, or keeping applications from leveraging better solutions from other vendors. Platforms that offer an open, pluggable, full-stack approach were given the highest marks in this category.

Trend Spotting

To respond to iteration acceleration, developers and operations resources not only need to “do more, faster,” but also do the right things at the right time. Understanding what to do — and when to do it — requires consolidated metrics, analytics, and visualizations. Platforms with advanced application and operational analytics allow app developers to collect important metrics and represent the trends behind those metrics quickly and accurately to developers, operations, and management.

The optimal platform is one that will allow team members to identify two types of trends: operational issues (like app crashes, latency, or broken interface) that are negatively affecting customers today; and strategic opportunities (like how user interaction with the app may suggest potential new products or features) that will drive the evolution of the app. With rich applications involving many calls to remote back ends, an ideal analytics dashboard would show a consolidated end-to-end picture of all metrics that are influencing the user experience.

The importance of analytics will only multiply as device fragmentation continues to explode. IoT will offer a great deal of disruption potential in the coming years as headed and headless (no UI) devices with widely varied capabilities and connectivity become more commonplace.

Platforms receiving the highest marks in this category are ones that make full end-to-end metrics collection and consumption easy to implement and use, and whose architecture and implementation allows for integration on yet-to-be-developed IoT devices.

Destabilization

Fragmentation and inter-connectivity create opportunities for security breaches. As more critical workflows move to mobile, so will more hackers, viruses, and attacks. At the same time, most MADPs are trying to make building an app easier, not harder, and low-level security considerations are being abstracted away from the developer. This is a potential win, but only if the point-and-click app development tools generate secure code.

Developers implementing native-level code are faced with the challenge of performing in-platform static code analysis and scanning to ensure that code-level issues are caught before end-user install. This is especially true for B2E apps using sensitive data, and possibly running on less-secure BYOD devices. Some platforms go as far as implementing [Enterprise Mobility Management](#) capabilities, isolating and wrapping sensitive data on a user’s device in order to independently manage and potentially remotely wipe that data.

No platform will ever fully address all application security issues across all devices and back-ends. Still, some vendors have extensive backgrounds in security and have leveraged existing products or architectures to enable better coverage in their platform. Additionally, platforms which offer “full-end-to-end” products encapsulating the IDE, the network, and the back-end with pluggable capabilities to industry standard security products and identity stores will offer the tightest security, and as such, are scored higher for this vector.

Company analysis -

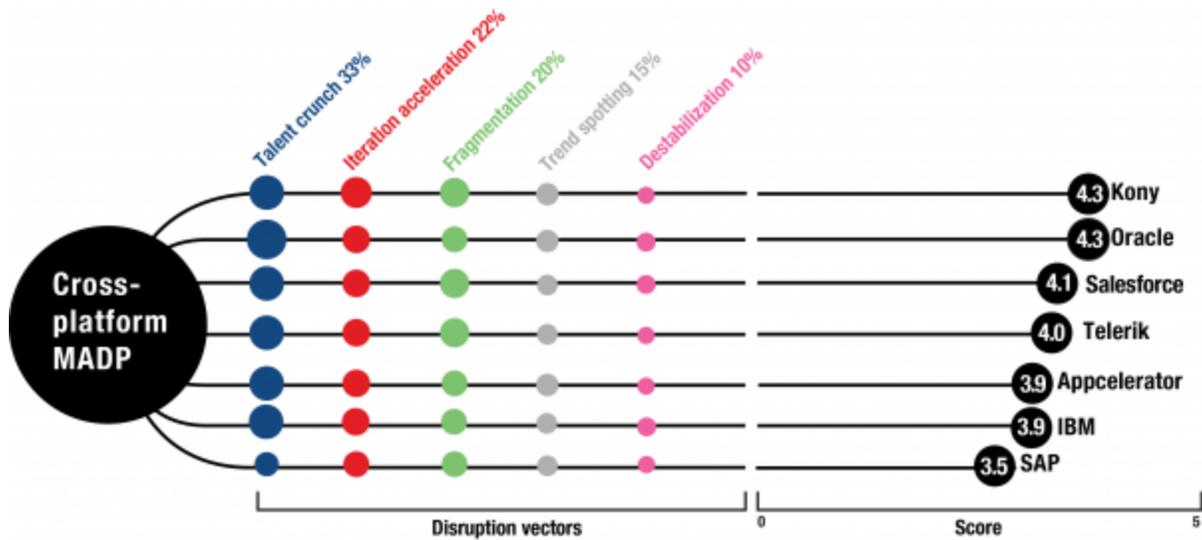
In a market this nascent and quickly moving, no vendor can provide everything a developer requires. For this review, Gigaom Research has chosen an assortment of vendors with very different approaches and specialties that meet at least most of the following requirements:

- - A respected and well-adopted development environment
- - The ability to design multiple types of apps (including at least two of native, hybrid, or web)
- - A robust, yet pluggable, back-end with support for both application services (like - authentication and push notifications) and data store integration. -

This section compares the approaches to the mobile app development market for seven representative vendors:

- - Kony
- - Oracle
- - Salesforce
- - Telerik
- - Appcelerator
- - IBM
- - SAP

We also review three additional vendors worth considering. In addition to the scoring in this report, buyers should carefully consider their own situations in assessing which approach makes the most sense for them.



Key:

- Number indicates companies relative strength across all vectors
- Size of ball indicates company's relative strength along individual vector

Source: Gigaom Research

Kony

Resist the temptation to classify Kony as a young upstart. The company was founded in 2007, and it is a mobile veteran. It now boasts more than 300 customers in 45 countries, 50 of which are in the Fortune 500. Although the company initially targeted the construction of B2C apps, it has tightened its platform to enable the creation of complex, security-focused enterprise apps as well.

Perhaps the biggest reason to like Kony is its unparalleled focus on supporting the full systems development lifecycle (SDLC), allowing developers and designers to design, build, and manage rich native, hybrid, and mobile web apps from a well-designed, cohesive set of tools. Kony assembles its full offering around the SDLC, with products focused on prototyping, app build out, deployment, and management – all building on a common mobile back-end known as “Kony Mobile Fabric.” Another key differentiator is Kony Apps Cloud, a ready-to-run library of fully built customer and enterprise apps requiring minimal setup and configuration. Kony also recently announced a SaaS-based app platform that enables business analysts to assemble and configure code-free mobile app solutions from reusable components.

In response to the company's finding that 70% of app problems occur in the design stage, Kony Visualizer is a set of WYSIWYG, cloud-based GUIs that enables stakeholders, designers, and developers to define requirements, collaborate, and quickly design and prototype apps. The code generated by Visualizer is reusable when moving to an actual app build, which is supported in its developer IDE, Kony Studio.

In the Kony Studio, developers can code in HTML, JavaScript, and CSS, but the IDE also provides a highly visual, intuitive, and intelligent point-and-click, drag-and-drop interface. Developers can also quickly preview their app across many devices, without waiting for a compile to complete.

For back-end services, Kony MobileFabric supports open, standards-based, enterprise-grade MBaaS services across cloud, hybrid, and on-prem infrastructure. Kony has traditionally had very strong integration with SAP backends and, now offers support for nearly any enterprise-ready data store, line of business system or third-party web service.

Kony promises to support all new devices within 30 days of their launch, a pledge that no other MADP currently matches. Finally, Kony boasts current support for a wide variety of devices, including Blackberry and Windows Phone. With its fanatical support of new devices, Kony is well-positioned to be a key player in supporting the future form factors of IoT.

Oracle Mobile Application Framework (MAF)

Many large enterprises have deep investments in the Java platform and Java-proficient development teams. Oracle's MAF (which subsumed the previously branded Application Development Framework or ADF), enables developers to use Java as a first class language in app dev. The platform also recognizes, however, that many teams these days prefer the HTML / JavaScript / CSS environment, and it allows for development in those languages, as well.

Oracle's MAF emphasizes a multi-channel, pluggable approach rather than a monolithic stack. For a development environment, MAF uses either Eclipse (via an Eclipse plugin) or JDeveloper. Reflecting its open approach, the Eclipse support and functionality is in many way superior to even JDeveloper. Both approaches offer a simple declarative, visual approach to app dev and ship with about 85 reusable components such as thematic maps, swim lanes, and carousels. This rich library of base components can be used as-is or customized via CSS.

Internally, the framework leverages the open-source Apache Cordova and can immediately take advantage of plugins written for this core container technology. It also utilizes an on-device MVC-based web view that allows for both display and interaction

with multiple flavors of components – native, local HTML, and remote. In this native container, apps have offline support as well. As stewards of the Java platform, Oracle is uniquely positioned to bring new developments to its MADP solution first and best — an advantage that could be profound in the months and years to come.

MAF has well planned, mature, and use case-driven security features, mainly via the inclusion of the Oracle Mobile Security Suite (OMSS). To isolate corporate data from personal on BYOD devices, OMSS leverages a local encrypted data store which can be tied to unlock via common enterprise identity stores such as LDAP. It supports simple encryption for data on the wire (like email or text messaging), as well as remote wipe, and Data Loss Prevention.

MAF is just the mobile piece of Oracle’s larger “SOA Suite” offering, which includes analytics, orchestration, service virtualization, and connectivity to cloud as well as on-prem. The unified, open, standards-based approach behind the platform make both MAF and the SOA Suite very appealing to the enterprise audience.

Salesforce

Throughout the stack, Salesforce (in the form of the Salesforce1 Platform) may have one of the most modular approaches to MADP. Every component – from UI elements down to workflows and back-end systems – is swappable, securable, and re-usable, enabling a great deal of developer productivity. Though many MADP offerings came at the stack from the front-end, Salesforce started in the opposite direction, and time spent building out its cloud-centric products has resulted in a highly stable, secure MBaaS and PaaS layer.

Heroku, Salesforce’s scalable, productivity-enabling PaaS solution, has long been a darling of hip, agile startups and upstarts, and easy MADP integration to that PaaS solution could well be a deciding factor for companies with back-end products in that platform.

Force.com is another true platform as a service, and Salesforce actively makes that platform accessible through Mobile Packs – downloadable kits that seamlessly integrate into popular frameworks including Appcelerator, Angular, Xamarin, and Backbone. Salesforce also takes backwards compatibility of these integration APIs very seriously, running over 60 million tests to ensure they fully support everything back to version one of its API. Security of the data running inside of a Salesforce app can be as narrow or wide as a developer needs, from securing the full app to individual objects and individual data cells or atoms.

Salesforce1 is built with the responsive design-enabled Lightning JavaScript framework. Lightning is an open source, component-based UI framework in which every component is independently versionable. Every component interacts with every other component via events and attributes, very similar to what developers call interfaces, and quite different from other platforms' architectures. Lightning is also the only JavaScript framework that allows developers to create their own custom components that work with or alongside pre-authored components. Lightning will allow customers, developers and partners to not only customize and extend Salesforce1, but also create next generation, cross-platform applications easily and securely within the Salesforce1 container.

Because of JavaScript namespace collisions, many enterprises simply disallow certain extremely useful frameworks like Angular or Twitter Bootstrap. The Salesforce1 approach to namespacing removes such collisions by wrapping each component in its own sandboxed namespace – saving a lot of debugging time and effort and allowing enterprises to use these standard frameworks.

Security aspects of the platform are second only to perhaps IBM, with very granular control over not only each app, but each app component via permission sets or connected app policies. With the recent announcement of [Salesforce Wear](#), Salesforce has signaled that it very much intends to be an important player in IoT.

Telerik

Telerik's lineup consists of the adaptive Telerik Platform (the full mobile platform) and Kendo UI, the highly popular and widely used IDE that put Telerik on the map. Kendo UI is a multi-language environment used for both web and mobile development, and in the web world it comes with over 70 reusable components such as list views, calendars, maps, and so on. Telerik also offers DevCraft, a set of UI controls, reporting, and developer productivity tools for the popular .Net platform.

Telerik has made extensive investments to “support developers where they are – not where we force them to be.” Unlike other platforms that pigeonhole developers into specific development tools, Telerik App Builder (formerly known as Icenium) provides wide support for a large number of IDEs, command line interfaces and existing build processes.

To increase developer productivity via quality, community-driven code contributions, Telerik offers the Verified Plugin Marketplace, a curated, vetted marketplace of code and plugins. On the developer productivity front, keep eyes peeled for full device cloud integration testing (the ability to run tests on physical devices in the cloud to streamline and encourage functional testing). This feature is high on the current product roadmap and likely to be released in late 2014. Current simulator-driven testing capabilities allow

any type of app from native to hybrid or web to be tested, and tests are written in familiar Javascript.

Another interesting development for Telerik is the [announcement of NativeScript](#), which purports to allow developers to build native Android, iOS, and Windows Universal apps using pure JavaScript. NativeScript appears in many ways to compete directly with the architecture and performance capabilities of Appcelerator Titanium. It will be made completely open source and has an aggressive feature roadmap that ends with general availability in roughly January 2015.

Telerik is ramping up its back-end offering with current support for app-level and data-level integrations, and a unique differentiator is its image resize and caching service which enables responsive image design and can be hooked into any third-party CDN.

Telerik has an extremely strong reputation in customer service and support and has garnered a loyal, dedicated following. On October 22, Progress Software [announced a \\$262.5 million acquisition of Telerik](#), which brings a tremendous amount of financial, technical and sales potential to the platform. If the acquisition goes smoothly, Telerik should be able to build out its feature set substantially in the next 12 months.

Appcelerator

There is a lot to like about the Appcelerator Platform offering – strong analytics, the Singly platform, and the widely acclaimed and heavily utilized Titanium IDE. Historically, Appcelerator has been prescient with regards to technology choices, believing in the potential of, and deciding to support, the nascent “JavaScript on mobile” approach before most others realized its value.

The platform’s analytics capabilities are second to none, providing both operational and strategic metrics from the top to the bottom of the stack. It boasts of “immediate insight into five key mobile metrics: adoption, engagement, retention, quality, and conversion,” covering all the bases for strategic analytics.

Unlike most other approaches that leverage PhoneGap (or its open-source cousin, Cordova) for containerization and access to device sensors, Appcelerator Titanium uses its own technology for device-level JavaScript runtime and API libraries. This has resulted in a great deal of confusion about what exactly Titanium does, and how that differs from Cordova. Essentially, this unique approach enables Titanium to build out apps requiring more complex UIs, such as those used in real-time, CPU-intensive games. Titanium-built apps may boast a higher level of performance and native integration, but developers often complain those benefits come at the cost of longer development times.

Singly is a platform that integrates third-party services in both web and mobile applications. To build out its platform, Appcelerator acquired Singly in late 2013 and has been integrating the product into its MADP offering. Singly's AppFabric allows users to authenticate to various services and social networks, allowing apps to integrate data such as "likes" or friends lists, and its DataFabric service handles data syncing, storing, querying, and filtering.

IBM Worklight

Worklight is the MADP piece of IBM's wider MobileFirst push, and the offering provides all of the things one would expect in an enterprise MADP, without many surprises. Worklight is a very strong product throughout, and it is one of the most mature, well thought out, and well-executed MADP systems in the market. In every one of our disruption vectors, it held up well, and when it comes to security, it distances itself from the competition.

Worklight offers the ability to build native, hybrid, and web apps via a complete visual editor, integrated test and deployment tools, integrated cloud-based API hooks, a rich set of analytics capabilities, and a superior security approach. Worklight takes an open, standards-based approach and promotes pluggability at every layer, making it more nimble and able to respond to the ever changing mobility landscape.

Those leaning toward a more DevOps-oriented environment of continuous integration/continuous deployment (CI/CD) will appreciate the many ways Worklight enables this work style. Worklight offers deeper security and quality features such as static analysis (via its Application Scanning product), an integrated QA model, and a holistic operations console that allow organizations to identify and fix bugs faster and in a more automated, enforceable fashion.

Developers can build their apps in the Eclipse-based Worklight Studio IDE, which has excellent third-party library integration support and provides visual development capabilities. Backend systems are enabled via Worklight Server, a rich, open, extensible set of services to deploy and serve application-level services and enable data store connectivity.

Although Worklight is one of the newest offerings on the MADP scene, IBM has delivered a product that is worthy of attention, and will likely grow in features and adoption in the coming years.

SAP Mobile Platform (SMP)

The SMP offering can be used to develop and deliver any form of app from native to mobile web and provides a modular, open-source friendly, standards-based approach to app development. Users have developed and deployed B2E, B2B and B2C apps on the platform. Like many players in the MADP space, SAP is leveraging its vast experience and deployment base in back-end systems, and is now building out its mobile capabilities via acquisitions and internal product development.

The current SMP platform brings together capabilities from three individual products, two of which were obtained from recent acquisitions. Sybase brings mobile and consumer application services and support, Syclo brings products and expertise to enable rich business application development and SAP brings strong back-end gateways and data integrations.

SMP uses common, open standards from the top to the bottom the stack. For the data model and back-end integration layers, SMP uses leverages OData, for device-level containers we again see HTML and Apache Cordova (which SAP wraps under the “Kapsel” name), and several layers of the stack use [OSGi](#) for modularity and interoperability. Backend services are very strong, with deeper hooks and integrations into the SAP suite of tools, and analytics capabilities are as good as seen in other vendor offerings. SMP’s developer environment is named AppBuilder, and it supports both visual and code based prototyping and development. From the Sylco acquisition, SMP brings easy buildout of rich UIs such as augmented reality and 3D visualizations – a nice bonus that other platforms don’t seem to offer.

Additional vendors

The MADP market is large and varied, and will continue to grow. No list can be exhaustive, and businesses considering a partnership should use the companies profiled only as a starting point. Following are short summaries of some of the most interesting and promising vendors not scored above.

Adobe

Some MADP systems attempt to be everything to everyone. With Adobe Experience Manager Apps (AEM Apps), Adobe takes the opposite approach by defining a primary focus – marketing-focused B2C and B2E apps – and building best of breed solutions tailored to streamline and supercharge its specific prototyping, development, and operational needs. While other developers can certainly find value in the product, AEM Apps is squarely targeted at marketing applications and the ecosystem they require. This “all-in” strategy can be both a blessing and a curse. It has immediate appeal to

organizations building marketing apps, but companies that use the product may also have to leverage another MADP for more general B2E or B2C apps.

AEM Apps include PhoneGap Enterprise, which extends PhoneGap web, hybrid, and native app builds with Marketing Cloud and MAM capabilities. It also includes the Adobe Digital Publishing Suite (DPS), which enables visual prototyping, development, and management of content-heavy applications. Adobe Analytics is also an attractive part of the overall offering, providing a holistic view of operational and strategic metrics via consolidated dashboards, reports, and visualization – relaying actionable insights to help better understand and drive the customer journey across devices.

As stewards of PhoneGap, Adobe enjoys fast and deep access to the rich ecosystem of community-contributed plugins and support in addition to the ability to extend and overlay enterprise level features on top of the ubiquitous, well-understood offering.

Sencha

Sencha has been in business since 2007, and has built out a robust service offering in the form of integrated products, frameworks, tools, and management systems around HTML. At the core of its offering is its Sencha Touch framework, an HTML-based mobile app development framework that builds apps out Android, iOS, BlackBerry, and Windows Phone. Sencha EXT JS brings Javascript functionality for the logic layer and includes both UI widgets and data management libraries to desktop web applications.

Sencha Architect – its single integrated visual app builder – allows for prototyping and code generation as well as direct code editing. Sencha offers many pricing and bundling models, and its Sencha Complete platform includes all of the above, as well as charting, grid libraries, and enterprise data connectors.

For the enterprise-minded, it offers Sencha Space to secure, protect, and manage sensitive corporate apps and data on BYOD devices.

Xamarin

For developers who use Xamarin, it's the only tool on the list that matters. For .Net/C# houses, Xamarin is the best way to enable existing developers to write mobile apps. It empowers C# developers to use C# code for building native UI and functionality on Android, iOS, and Windows Phone via shared code. To support the UI layer natively, Xamarin offers direct C# hooks to access platform-specific APIs, as well as the capability to build from Xamarin.Forms – shared UI code that renders native elements.

Xamarin wraps its suite into Xamarin Platform, Xamarin Test Cloud and Xamarin Insights. Xamarin Platform includes device specific visual designer tools and has two options for development environments: a Visual Studio plugin and its own IDE, Xamarin Studio. Xamarin leverages Portable Class Libraries (PCLs) to modularize and share common code among apps. Xamarin also supports 100% of each device platform's APIs in C#. Anything an Objective-C, Swift or Java developer can do can be done in C#. Xamarin recently announced Xamarin Insights, a real-time app monitoring and crash reporting solution integrated into the Platform. Xamarin Test Cloud provides automated mobile app testing on over 1,000 devices and form-factors, and is targeted at all mobile developers – not just those using Xamarin to build apps.

Although late to the platform game, Xamarin has hustled to catch up, and it has recently announced partnerships with Microsoft, SAP and IBM to build out application and data layer back-end integrations. Although a few other options exist for .Net MADPs, Xamarin is far and away the leader when it comes to the .Net/C# market. Many foresee an eventual acquisition by Microsoft, in order to shore up that company's mobile capabilities. Xamarin's native capabilities and Test Cloud coverage make it appealing even to developers outside of the target C# base.

Outlook and key takeaways -

MDAP offerings are rapidly converging around common stacks, standards, methodologies, and offerings. Already, the commonalities are many, the differentiators are few, and commoditization looks inevitable. Still, for platforms that do enjoy a lead in a certain area, that lead will likely continue even as competition bridges the gaps. The space is still quite young, but leaders have clearly established products, reputations, and followings for doing certain things well.

Many organizations will choose an MADP from their existing back-end systems vendor just for simplicity and sure integration. MADP vendors overall have been very careful to avoid forcing lock in, and most take an open, pluggable approach to toolkits and back-ends.

Although no one single platform currently outshines all others in all aspects, our research indicates that many trends are in place that make certain considerations of an MADP platform more valuable than others. We've detailed a few of those considerations and findings below.

- - Perhaps the biggest factor in MADP selection is the ability for technical and non-technical resources to write and maintain apps quickly. The more accessible development tools are the ones that will actually get used. Oracle MAF and IBM Worklight seem to offer the most paths to development by supporting a popular high level language (Java), web commodity languages (HTML / JavaScript / CSS), and visual development tools for non-developers. When deciding upon an MADP stack, one must carefully consider who will be driving development and make sure that the environment matches those skillsets and provides for the highest productivity.
- - Although all MADPs claim to be open and support standards, they each are open in different ways and support a somewhat different set of standards. For this reason, it is imperative that developers carefully review the true technologies and methodologies behind each platform to determine its suitability for a given project. It is equally important that developers are aware of the product roadmap for each MADP, since standards and integrations evolve quickly.
- - For some organizations, IoT support may be the largest “known unknown” in mobile development. The approach of some platforms such as Kony and Salesforce may lend themselves better to new form-factors and device capabilities as they arrive. IoT is one area where concerns of security, network, and MBaaS scale could make or break a product, and it's highly likely that MADPs will need to plug into specialized third-party solutions in those spaces to address those needs.

- -Although MADP capabilities are converging, there is enough differentiation and specialization at the moment to make a multi-MADP approach attractive. A large enterprise may need to leverage multiple MADP solutions from multiple vendors in order to best develop and maintain all of the apps required for the business. Rather than going the “one size fits all” route, organizations may choose to specialize. For example, Marketing may use Adobe AEM, while the rest of the company uses Oracle MAF, Kony, or Worklight. Some organizations may choose to develop both general apps and games in a platform like Appcelerator.
- -The MBaaS layer of the MADP stack is currently in major flux, with a great many providers building both specialized and general-purpose solutions. Because of the dynamic nature of this layer, developers and managers need to ensure that the back-end of their MADP solution is as atomically pluggable as possible.

About Rich Morrow -

Rich Morrow is a 20-year open-source technology veteran who enjoys coding and teaching as much as writing and speaking. His current passions are cloud technologies (mainly AWS and Google Cloud Platform) and big data (Hadoop and NoSQL), and he spends about half of his work life traveling around the country training the Fortune 500 on their use and utility. He leads the Denver-Boulder Cloud Computing group, as well as quicloud, a Boulder, CO, based cloud and big data consultancy.

About Gigaom Research -

Gigaom Research gives you insider access to expert industry insights on emerging markets. Focused on delivering highly relevant and timely research to the people who need it most, our analysis, reports, and original research come from the most respected voices in the industry. Whether you're beginning to learn about a new market or are an industry insider, Gigaom Research addresses the need for relevant, illuminating insights into the industry's most dynamic markets.

Visit us at: research.gigaom.com.

© Giga Omni Media 2014. "*Sector Roadmap: cross-platform mobile development*" is a trademark of Giga Omni Media. For permission to reproduce this report, please contact research-sales@gigaom.com.