Evaluating a Developer-Ready Cloud

How to choose the right tools to build best-in-class applications, sites and experiences

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Introduction

Replatforming your digital experience entails much more than websites now. Mobile sites, mobile apps and more are expectations. Customers want to be able to view content easily in any format. The decision-making process has evolved as well, with budgets shifting between departments and ownership moving outside of IT, and into marketing. Now the delivery and management of digital projects for many companies has shifted into the chief marketing officer's organization.

Developers are seeking tools and technologies that allow them to manage an increasingly wider array of applications with the same or fewer resources spread across a larger footprint. The IT team needs to tools to simply manage and maintain the application with a support level that doesn't tax its ability to execute in a secure and compliant manner. The marketers require a platform that can meet current requirements and scale to meet future demands for traffic, new technologies or new sites and applications.

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Critical Features for Your Digital Experience Cloud

When considering a platform for building the next generation of digital interactions for your customers, developers first need a foundation on which to build. This foundation must have the tools needed to quickly build and deliver an application that can evolve in concert with your customers. Although there are many many tools to enhance development experience, we will focus on three key technologies that will enable your developers to build applications that scale to future channels.

JSON API: It Makes What You Require Possible

No one likes waiting for pages to load. Making your customers wait is no longer an option. JSON (jay-son) is an API format that enables code to execute asynchronously, or not in a defined order. This matters because it allows visitors to interact with page elements before the entire page is loading. With JSON APIs feeding your digital applications, your customers will have better experiences because you have eliminated the wait time.

Second, although JSON is short for JavaScript Object Notation, it is language independent. This means your developers will not have to rewrite APIs from scratch if you build applications in the hot new programming language. With this standard, they can select the best framework for the app you have in mind and have it fetch content seamlessly from a web content management system like Drupal, for example. For digital applications, this is paramount to the decision to decouple your web content management from your frontend application. Leveraging JSON in these cases will hedge against future migrations.

In short, ensuring your systems enable a JSON API will enable you to connect your content from a single system to a wider array of digital applications with real-time capability. This means not only a better customer experience, but also a better developer experience when you add new technologies in the future.

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User Experience: It Matters

Developers like options and there are multiple tools they can use to accomplish their goals. Each member of your team may have a way they are most productive including, a graphical user interface (GUI), API, command line, or local development. Enabling your team to develop in the way it is most productive will ensure the best result. Just be sure to have the tools and tests in place to ensure code deployments don't lead to errors.

Because developers have different preferences for how they develop, it is important that your platform has multiple ways for code to be introduced for testing. Most platforms accomplish this through integrations, desktop tools and graphical user interfaces. Acquia offers all three. However, when your developers are developing code independently on their chosen tool, there is risk of teams becoming misaligned.

Continuous Delivery Pipeline: Ensuring Quality

DevOps and continuous delivery are best practices for teams that keep applications and sites updated. In order to take advantage of keeping your properties up-to-date, your team needs the right tools to ensure that developers working on different sections of the code do not create unforeseen bugs in your site. Continuous delivery tools are integral in mitigating these risks.

Continuous delivery is a combination of methodology and tools that enables your development teams to release new features more often and with higher quality. Pipeline automation tools streamline the process of provisioning test environments, integrating new code into your application, and running tests to ensure the updated application performs as expected. Orchestrating these functions with multiple teams working on features in a continuous fashion is key to success and the right tools in place make that a simpler process.

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Why Website Monitoring, Insight and Support Tools Matter

"My site is running slow."

Pro tip: You should talk to your support team as often as you can. It provides a lot of insight into how other teams within the organization like product, sales and marketing should focus the attention. That is how a lot of support calls start. "My site is running slow, and I don't know why."

This question can lead down a lot of different paths in terms of how you might solve an issue. All too often, the traditional response is to throw hardware at the problem. This approach can take many forms -- for example, it could mean autoscaling or adding new containers. Regardless of how your platform is architected, however, any addition comes down to servers and storage. Adding capacity does resolve issues, but it does so with a cost.

Site Report Cards

Once your application is up and running, your team requires tools to enable it to quickly assess the health of the site as it grows and as new features are added. There are three core areas where your digital team can assess your site to quickly understand its health:

- **Security:** Confirm that all patches have been deployed to avoid the risk of a costly breach.
- **Performance:** Confirm that the latest feature or patch release didn't impact your processing or storage negatively.
- **Code Best Practice:** Is your code delivering content and application functions efficiently?

We'll use Acquia's own site reporting as an example.

With years of Drupal and hosting expertise to guide us, Acquia developed Acquia Insights, a service that can analyze a site's code and configuration then provide developers with a score in three key areas: security, performance, and best practices. Users can drill into each of these categories to learn more about the specific changes they can make to address failed checks. Often times, improving site performance is as simple as changing a few site settings, and Acquia Insight can help users identify when those changes are necessary.

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Insight

Filter by Origin URL

Insight score is a rating given to your site by Acquia's Insight tool. It is a value assigned to the origin URL after your code and configuration have been examined, and is representative of your security, performance, and best practices scores. Learn more

Origin URL ⇕	Last Updated ⇕	Performance ⇕	Security ⇕	Best practices ⇕	Insight score ⇕
myprodsite.acquia.com	6 hours ago	100	86	100	91
devsite3.acquia .com	12 hours ago	80	57 ⓘ	67 ⚠	78 ⚠
stagesite3.acquia.com	2 years ago	74 ⚠	62 ⚠	60 ⚠	62 ⚠
dev-cloud.acquia.com	2 years ago	65 ⚠	50 ⓘ	50 ⓘ	57 ⓘ
scrubbed.acquia.com	2 years ago	74 ⚠	62 ⚠	60 ⚠	65 ⚠
external.acquia.com	a year ago	68 ⚠	62 ⚠	60 ⚠	62 ⚠
256.19.acquia.com	21 days ago	75 ⚠	62 ⚠	67 ⚠	63 ⚠

Stack Metrics: Glimpse Beneath the Hood

Report cards like Acquia Insight provide you a quick view into areas that may require attention. If you do see that your performance grade on a site is less than optimal, where do you go next? If you have identified that performance is your challenge, then you need to understand where the issues reside within your stack. This includes analyzing the use of all of your components from load balancers and cache, the requests to your CMS and database and the use of your storage.

Informed users are more efficient users, we've found, so in 2017 we released Stack Metrics to all customers. Using the same key metrics as Acquia's support teams, Stack Metrics shows customers important resource utilization trends and anomalies so they can immediately identify (or rule out) some of the more common sources of application performance issues.

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Among the graphs available in Stack Metrics are:

- Total Varnish, Nginx, and Apache requests
- Varnish Cache Hit Rate
- HTTP Response Code Rates
- PHP Process Count
- Max PHP Processes warning count
- MySQL Slow Query count
- OOM Error Count
- Storage Utilization

Application Monitoring: Deep-Dive Analytics

Application monitoring has become a must-have for development and operations teams, especially those employing continuous delivery and integration best practices. A good APM solution gives the development team insight into how each layer of an application perform is performing, especially during and after code pushes, configuration changes, database updates, and high traffic events. Furthermore, these tools enable the team to ensure that any external services connected to the application are healthy and not impacting site performance.

Acquia has partnered with New Relic to ensure our support teams can utilize its services for diagnostic purposes.

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Support: Your World-Wide Centers of Excellence

Support teams, by nature, go over and above to help customers. A solid support team should reassure customers that if the issue is within application code, you team not only has the expertise to identify and provide insight to remediate but a commitment to do so.

To effectively monitor and manage an application in the cloud, you're going to need a lot of specialized tools. To diagnose issues and optimize performance properly, you're going to need a firm understanding of which tools to use, when, and how. When your applications are mission-critical and every second of downtime counts, you cannot ensure their success without access to all the right tools and expertise.

First the wind up, now the pitch. When you need to extend your team, Acquia Support is there to help you dig deeper and optimize the performance of your applications. With more than 70 experts in Drupal, networking, and cloud infrastructure management located all around the globe, our team uses years of experience and a slew of custom tools to resolve thousands of performance-related problems for our customers every year.

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Scaling Beyond Capacity

Scale is so frequently used in business, it can lose its meaning. When thinking of a system (like a cloud platform for digital experiences), scale means a system will continue to perform under increased workloads, but it doesn't tell you how you can get there. Often the simplest answer isn't the most efficient. When it comes to your digital footprint, that workload is spread across the hardware, software and the human components of the system. Adding capacity to infrastructure is an easy process and isn't fraught with too many challenges. However, all of that hardware can cause costs to balloon with unanticipated.

Scaling with Process

At any given point, your team has any number of new feature requests, patches to deploy and minor updates to make to your application. Long branches of code can cause challenges in updating. Teams require code freezes to perform testing on a single update. All of these actions require time.

Continuous delivery and integration are best practices that teams have widely adopted t address these challenges. They include the adoption of code pipeline tools that automate the process of building new code (both in the case of new code and for updates to existing branches). These update processes can eliminate the requirement of code freezes and ensure that key tests are performed and automated. The end result, adopting these best practices helps team manage work in smaller chunks, keep sites updated without code freezes and excessive downtime, and enable a faster delivery of updates and changes.

At Acquia, we have both an open API to integrate with existing pipelines tools and our own Acquia Pipelines to automate the building and testing of codes. Furthermore, with Acquia Cloud CD, we incorporated the creation of a production-like development environment to be automatically enabled for testing. This futhers the efficiency of the continuous delivery process.

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Scaling with Architecture

Over the past few years, a new approach to adding scale to digital teams has emerged. Decoupled or headless architecture strategies allow front-end and back-end web development teams to change how websites and applications are developed. In this approach, teams meet at the beginning of the project to agree on requirements.

Rather than the front-end (design) team awaiting the completion of the back-end design, they can begin developing the frontend immediately. Open APIs from web content management systems, like Drupal, enable this process to work. Rather than requiring the details of back-end structure, the front-end team needs only the design of the API to have the frontend "fetch" content from the back end.

Acquia launched our Node.js service for this use case in 2017. This service incorporates the support for JavaScript frameworks running on Node.js web servers to our traditional Drupal stack. The end result is a seamless architecture and workflow to enable teams to leverage not only a decoupled approach to how the front-end and back-end teams work together, but also a decoupled approach to how the application is designed.

No matter what your application, you are going to need to plan for it to scale. This may be due to the size of the team you have supporting your digital strategy, growth in traffic to your site or application, or more ambitious features incorporated into your site. When you are considering how to scale, consider that it requires much more than just hardware.

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Conclusion

The evaluation of a cloud platform is more complex than simply determining the servers and storage you require. It entails understanding how your provider has assembled infrastructure, tooling, administration and support to meet your needs over the long term. Support for standards that will stretch well into the future are paramount to long-term investment. Ensuring transparency, security and compliance is critical to platform administrators. Finally, a platform that uses technologies that allows the freedom to create and test innovative technologies with minimal risk.

To embark on a successful endeavor to modernize your digital presence, teams that consider the providers approach to tools, technology and sale are better positioned to invest in a platform that is built to stand the test of time.

4 Key Takeaways:

1. **Keep and eye to the future:** Make sure that the platform is adopting standards that are likely to survive well in to the future.
2. **Make sure you have visibility into your performance:** Stack and application monitoring tools ensure you can find and address problems before they become catastrophic.
3. **Be sure the platform (and provider) are ready to scale with you:** Whether you are expecting rapid growth in application use, or growing your application footprint, be sure that your provider has the architecture and support structure that is ready to serve your needs - no matter how big or small you get.
4. **Consider whether your platform goes beyond just a platform to build and operate your applications:** With a solid platform to build and operate your digital experiences, make sure you have a path to personalize and optimize what you deliver.

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