

GIGAOM

VENDOR PROFILE

CircleCI

Key Criteria for CI/CD

JON COLLINS

TOPIC: **DEVOPS**



CREDIT: NATALI_MIS

CircleCI

Key Criteria for CI/CD

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PART 2 OF 4 IN A SERIES KEY CRITERIA FOR CI/CD

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1. Summary

How to read this report

The Vendor profile is part of a series of documents aimed at giving the reader the tools to better understand a technology, evaluate it, and explore the market to find the best solutions for their organization.

In this context, and to get a complete view of the state of the solutions available in the market, the reader should consider the following documents:

- **Key Criteria** is an introduction to the technology, defines the necessary evaluation metrics, the key criteria to evaluate new solutions, and the impact of the latter on the former. It is dedicated to those end users that are approaching a new technology for the first time or want an update on the latest evolution.
- **Vendor Profile** covers a single vendor regarding the solutions described in the other reports. They provide more details on the solution, how the vendor approached the key criteria, and the impact that its solution has on the evaluation metrics. This document helps end-users to get a quick but complete evaluation of a single vendor.

Please refer to GigaOM Key Criteria for CI/CD report to get a complete description of the key criteria and evaluation metrics referenced in this report.

2. Overview

Rather than trying to be everything to everyone, CircleCI focuses on the challenge of doing core CI/CD as well as possible. This means handling complexity and focusing on software build efficiency, enabling developers and engineers to get on with the job of innovation.

Target Market Categories and Deployment Types

Market positioning:

CircleCI operates in the core CI/CD space. Strip away the jargon, and the company offers a facility that enables organizations to build applications automatically and efficiently. The vendor is focused on simplifying what can be a complex space, in terms of both artifacts and activities involved; and to a large extent it achieves this.

The CircleCI software/service is based on YAML, to represent build steps and deployment targets, to represent workflows targets and indeed for its own configuration. This structure means that anything it uses can be stored under configuration control. Recognizing that enterprises can find YAML intimidating, CircleCI works on the basis of YAML templates, which it calls Orbs, for standardized steps, deployment targets and pipeline tool integration.

Each build takes place in a controlled container or VM. Successful builds can be deployed automatically, while failed builds can be reported back to development for resolution. CircleCI has a command line interface to help people avoid using the GUI, which people like: once it is in place, it can just run as part of the workflow. The UI could be simpler, without shielding users entirely from complexity, but this is the nature of the beast. All generated artifacts (from executables to test results and screen captures) are managed as build outputs (see Figure below).

Builds » CircleCI-Public » circleci-demo-python-flask » master » 27 2.0 Rebuild

SUCCESS Finished: 2 months ago (01:22) Previous: 26 Parallelism: 1x out of 24x Queued: 00:00 waiting + 00:03 in queue Resources: 2CPU/4096MB Triggered by: Tom Atkins (pushed 6579fdc)

COMMIT (1)
Tom Atkins 6579fdc Update gunicorn for Heroku requirements.txt

Test Summary	Queue (00:00)	Artifacts	Configuration	Build Timing
<p>Container 0</p> <ul style="list-style-type: none">tr1/<ul style="list-style-type: none">TEST-test_api.APITestCase-20170904212313.xmlTEST-test_basics.BasicsTestCase-20170904212313.xmlTEST-test_client.FlaskClientTestCase-20170904212313.xmlTEST-test_selenium.SeleniumTestCase-20170904212313.xmlTEST-test_user_model.UserModelTestCase-20170904212313.xmlchrome.logselenium.log				

Figure 1. CircleCI Build Outputs are Managed as Artifacts

The product offers a reporting dashboard for build insights (such as successful/failed jobs), run times and overall performance; it also integrates with SumoLogic analytics to offer drill-down information.

3. Key Criteria Analysis

Particular highlights of the CircleCI solution are as below.

Pipeline automation – The CircleCI solution incorporates the notion of workflows, with dependencies between workflow jobs, for example, across build, test and deployment. Workflows can be scheduled and can incorporate tags/regular expressions for more complex build scenarios.

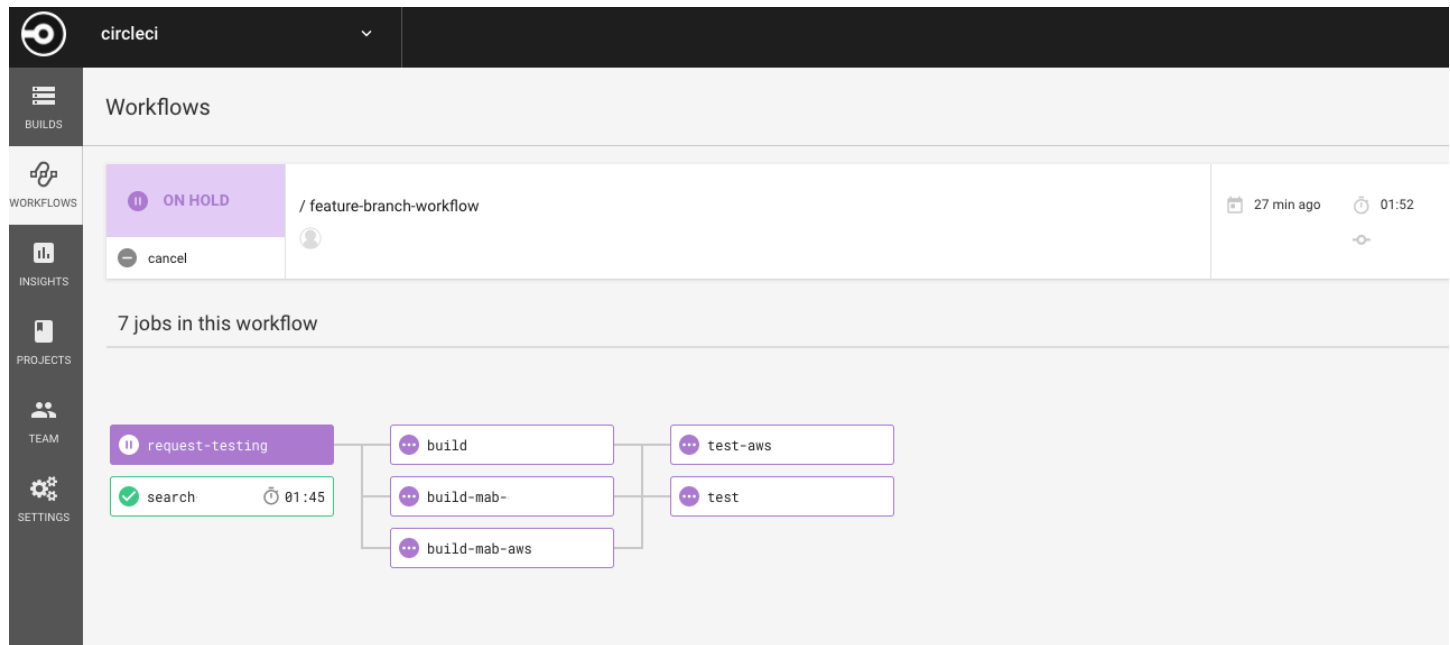


Figure 2. CircleCI Employs Workflows to Control Integration & Delivery Activities

Governance By Design – Given CircleCI's use of Orbs, the product comes with an amount of opinionation, supporting the notion of guardrails without enforcing too much control. CircleCI workflows incorporate manual review steps, should a build require approval before deployment, for example.

Target orchestration – The CircleCI solution enables deployment to be automated to defined targets. While the application stops short of dynamic target orchestration, it offers pre-configured Docker containers and Linux/Windows VM targets such that target environments can be specified for any job, pre- or post-deployment.

4. Vendor Evaluation

CircleCI can be installed on a private server or run from the public cloud, reducing the overhead for local installation and management of the build environment. Cloud-based CircleCI operates on a pay-per-use basis and so encourages management of build times/resources, and incorporates features to make builds efficient. For example, caching enables pre-fetched packages and dependent libraries to be re-run on subsequent builds.

Costs of CI/CD are proportional to the processor time they consume: in-house CircleCI can scale according to the hardware resources provided; meanwhile for hosted CI, it enables build resources to be allocated for specific builds, to ensure resources are used effectively. CircleCI offers a free single-job version, then flexible pricing by individual or on a site-wide license. Some customers see cost control as a potential challenge, but this is in part due to the scale and complexity of the applications created.

By its nature, CircleCI covers the gamut of platforms organizations are looking to use. It now has some 900 orbs in its registry, from 45 partners, covering pipeline tools (e.g. Aqua Security, Sauce Labs) and target environments (e.g. AWS S3, Red Hat OpenShift). In terms of tool integrations, it connects with GitHub and Atlassian tools (such as JIRA and BitBucket) out of the box, and can integrate with other tools/repositories (such as LaunchDarkly for feature flags) via API.

Identity-based access is enabled through integration with common directory tools. This feature could be broader in terms of user types but covers the main bases. Audit logs exist only for private installations of CircleCI.

5. The Bottom Line

Rather than trying to be everything to everyone, CircleCI focuses on the challenge of doing core CI/CD as well as possible.

CircleCI is focused on two goals:

1. meeting the needs of organizations that no longer find traditional, legacy CI/CD infrastructure suitable (often based on Jenkins).
2. Helping cloud-native organizations to move forward with new deployment targets, for example: containers and microservices

The company sets its stall around making builds simpler, and therefore faster in terms of configuration overheads. This means handling complexity and focusing on software build efficiency, enabling developers and engineers to get on with the job of innovation. While the solution as it stands still requires an understanding of YAML and has an (unavoidable) engineering overhead, the company has done its best (for example, through Orbs) to minimize this drawback

Finally, the company is a proactive participant in its own user forum and is generally perceived to be responsive to user requests.

6. About Jon Collins



Jon Collins has advised the world's largest technology companies in product and go to market strategy, acted as an agile software consultant to a variety of Enterprise organizations, advised government departments on IT security and network management, led the development of a mobile healthcare app and successfully managed a rapidly expanding Enterprise IT environment. Jon is frequently called upon to offer direct and practical advice to support IT and digital transformation strategy has served on the editorial board for the BearingPoint Institute thought leadership program and is currently a columnist for IDG Connect.

Jon wrote the British Computer Society's handbook for security architects and co-authored The Technology Garden, a book offering CIOs clear advice on the six principles of sustainable IT delivery. He has written innumerable papers and guides about getting the most out of technology and is an accomplished speaker, facilitator, and presenter.

7. About GigaOm

GigaOm provides technical, operational, and business advice for IT's strategic digital enterprise and business initiatives. Enterprise business leaders, CIOs, and technology organizations partner with GigaOm for practical, actionable, strategic, and visionary advice for modernizing and transforming their business. GigaOm's advice empowers enterprises to successfully compete in an increasingly complicated business atmosphere that requires a solid understanding of constantly changing customer demands.

GigaOm works directly with enterprises both inside and outside of the IT organization to apply proven research and methodologies designed to avoid pitfalls and roadblocks while balancing risk and innovation. Research methodologies include but are not limited to adoption and benchmarking surveys, use cases, interviews, ROI/TCO, market landscapes, strategic trends, and technical benchmarks. Our analysts possess 20+ years of experience advising a spectrum of clients from early adopters to mainstream enterprises.

GigaOm's perspective is that of the unbiased enterprise practitioner. Through this perspective, GigaOm connects with engaged and loyal subscribers on a deep and meaningful level.

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