EmbedOps

DevOps for Embedded Software Development

DOJO FIVE

At Dojo Five, Embedded software development is what we do, and we understand the challenges embedded teams face when trying to maintain modern build and test environments and automated continuous integration (CI) pipelines for their teams.

EmbedOps consists of tools and services for development operations (DevOps) that cater specifically to embedded software teams. EmbedOps' goal is to help embedded software teams tackle the challenges of creating and maintaining consistent build and test environments.

The EmbedOps Product

EmbedOps consists of software, toolchains and services that focus on the foundation of any software development environment; build and test.

Software

EmbedOps provides web-based and command-line tools that make setting up and working with builds smooth and simple.

EmbedOps tools also integrate directly with your automated CI pipelines allowing any developer to run any step in the production CI pipeline exactly as it would be run on the CI server.

Toolchains

EmbedOps provides Docker containers designed for all of your build dependencies including compilers, testing frameworks, and code quality tools. These containers enable you to construct or reproduce development environments quickly and reliably.

EmbedOps currently supports GitHub, GitLab, and Bitbucket repositories and CI capabilities.

Services

In addition to setup and maintenance of your environment, our services include:

- Customized Docker containers for your specific needs.
- Custom integrations to CI systems that we don't currently support. Current support: Github Actions, GitLab, Bitbucket.
- Integration with testing frameworks. We currently support Ceedling and Google Test.
- Training for your team to fully capture the value of the tools EmbedOps brings to their workflow.
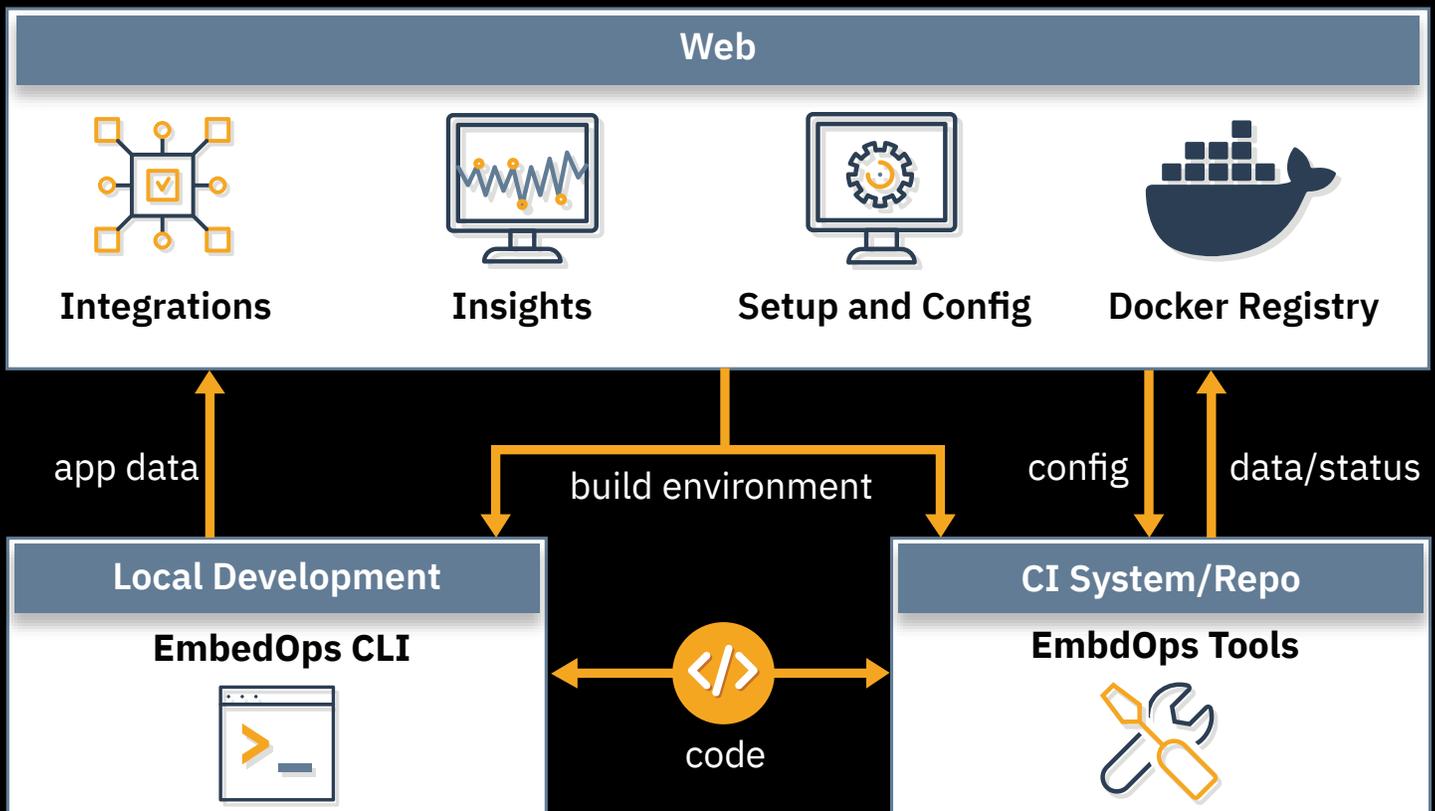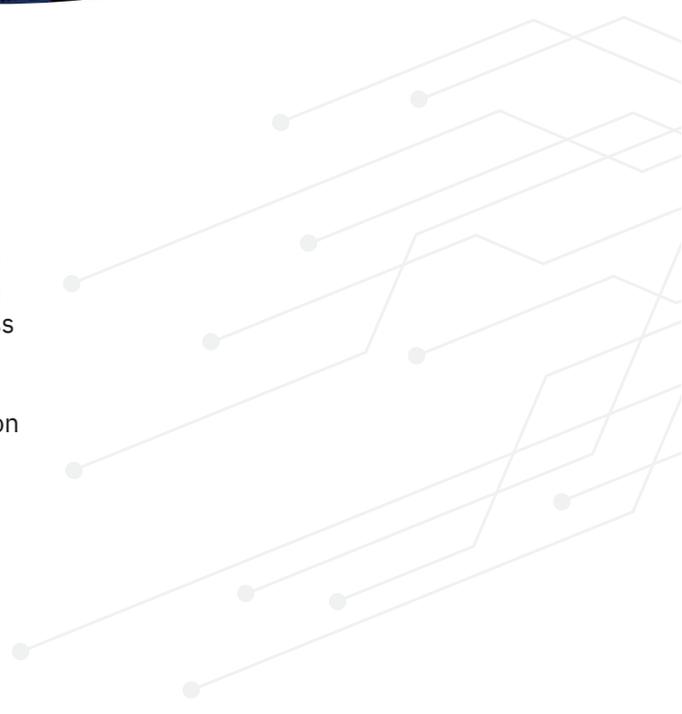
Benefits

- Developer onboarding is much simpler, happens in minutes, not hours.

- Reduces the issues relating to inconsistencies across environments, eliminating the infamous "hey, it builds fine on my system" problem.

- Enables build and test automation via modern CI systems.

- Enables developers to easily run any step in the CI pipeline in a local environment exactly as it would be run on the production server.

- Build configurations and dependencies can be tracked and captured easily, allowing any given build or test environment to be quickly reproduced.

EmbedOps Product:
Under The Covers

The current product consists of:

- **The EmbedOps CLI** – Built on Python, the CLI enables simple interaction with the build environment without having to learn Docker and CI systems nor needing to define the same process in multiple places.

- **EmbedOps Web** – Our reporting interface captures information about software builds that may be relevant to embedded developers such as memory planning and usage over time.

- **EmbedOps Docker Registry** – Docker is a popular containerization platform widely used for development and application runtime environments. We offer a number of pre-built containers through our Docker registry and continue to add new containers to expand our footprint of supported compilation, code quality, and testing environments.

Web

Integrations   **Insights**   **Setup and Config**   **Docker Registry**

app data   build environment   config   data/status

Local Development   **CI System/Repo**

EmbedOps CLI   **EmbdOps Tools**

code

EmbedOps Design Principles

Don't reinvent the wheel.
EmbedOps is not out to become another CI platform. EmbedOps provides a complementary ecosystem that integrates with best-of-breed tools already available in the market and makes them available to your team without the learning curve. Where needed, we're developing custom tools, integrations, and additional services to fill in the gaps for the unique needs of embedded systems development teams.

Keep it simple.
The EmbedOps CLI is intended to simplify the interaction with Docker containers and enable easy access to CI pipelines on the production server. This means development team members can build their code easily and exactly as it will be built in production. This allows your team to focus more on their code and less on having to learn the idiosyncratic nuances of the underlying tools.
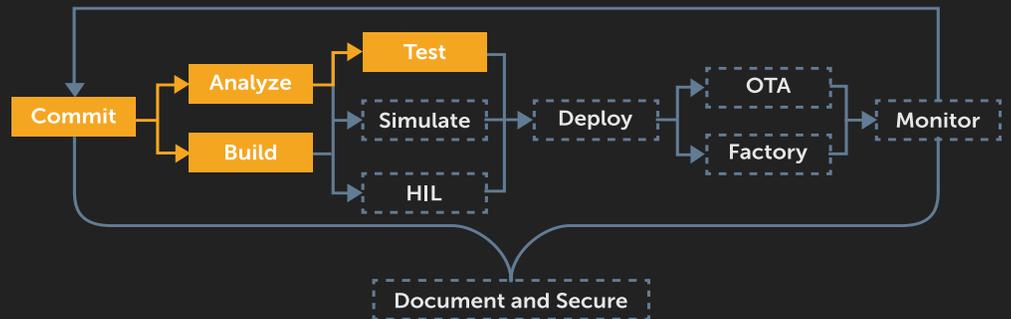
Avoid vendor lock-in.
We know that the development tool landscape is moving and changing faster than many of us can keep pace with. For that reason, we're avoiding choices that will result in "vendor lock-in" — that feeling of being locked into a tool or approach in a way that makes it difficult to adopt a new tool or approach when appropriate. This principle applies not only to the tools we're integrating with but also to EmbedOps itself!

The EmbedOps Vision

Build and test are at the core of every modern DevOps Pipeline. This is the current focus for EmbedOps, but we have no plans to stop there.

Our vision is one in which we enable fully automated workflows across the entire embedded software development life cycle and supply chain.

Commit → Analyze → Test
Commit → Build → Simulate → Deploy → OTA / Factory → Monitor
Build → HIL
Document and Secure

About Dojo Five

Dojo Five combines modern tools, techniques, and best practices from web and mobile development with leading-edge innovations in embedded software to build modern, world class firmware for embedded systems. With more than 100 years of combined experience in embedded systems hardware and software design, and more than eighty projects delivered to clients, Dojo Five has the tools, team, and experience to help with every aspect of your embedded journey.

Visit DojoFive.com to learn more about what Dojo Five can do for your embedded project or contact us for more information on EmbedOps and our embedded services offerings.

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