direktiv

A Quick-Step Guide to Serverless Event-Driven Architecture

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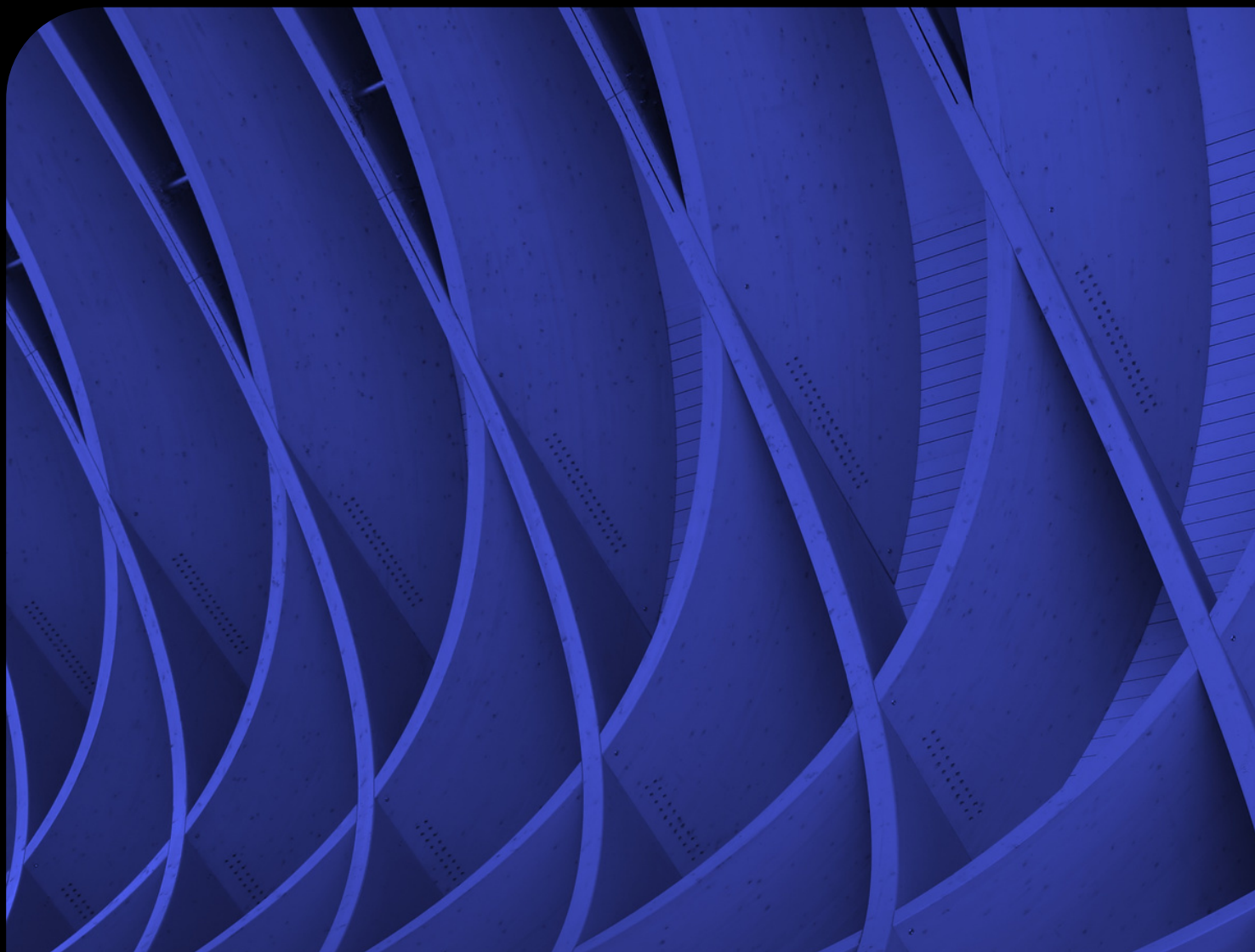

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Introduction

Most IT engineers spend 32% of their day on non-value add activities, including administrative tasks or menial tasks.

As a software engineer, you know just how much time you lose per day on repetitive administrative tasks. These activities eat into valuable time that could be spent on more productive, revenue-generating activities. For engineers, these menial, time-consuming tasks range in everything from server maintenance to password rotation. We get it — these chores are necessary to keep business operations running smoothly, but that doesn't mean they're not incredibly inefficient.

Imagine how much time you could save by automating a few simple tasks and eliminating the need for server maintenance. It sounds too good to be true, right? Luckily, this is entirely possible with serverless event-driven architecture and workflows. Let's dive into what, exactly, serverless architecture can accomplish.

In this eBook, you'll discover:

- Serverless architecture's power to save you time, resources, and more
- How serverless, event-driven architecture can allow you to automate and trigger simple serverless workflows and drive integrations
- The use cases in which serverless architecture reaps the most benefits for your business

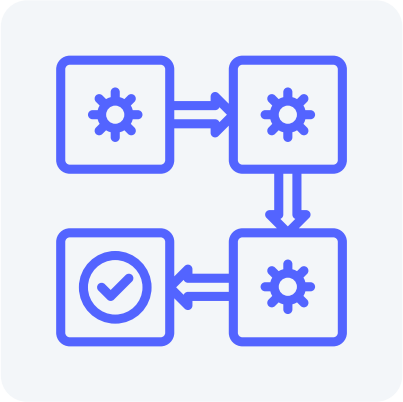
The Term “Serverless” Broken Down

So what does “serverless” mean, really? For engineers, serverless architecture means you can build a cloud-native model in which you can run all of your apps and services without the hassle of managing servers.

Aside from obviously saving hours of time on server maintenance, serverless architecture offers enhanced flexibility and control. Serverless workflows easily plug in to existing builds and CI/CD toolchains, while giving enterprises the freedom to move workloads wherever they run best.

What are the Use Cases for Serverless Architecture?

You’ll likely benefit most from using serverless architecture to perform easily automated tasks and manage workloads. Here are the cases when we believe serverless architecture works best:



Creating Event-Based Workflows

With serverless architecture, you can build simple, event-based workflows that run automatically when triggered by a certain event. This could be a time lapse, customer input, and more.

Building RESTful APIs that Scale

Leverage Amazon API Gateway to build RESTful APIs at scale with serverless functions.

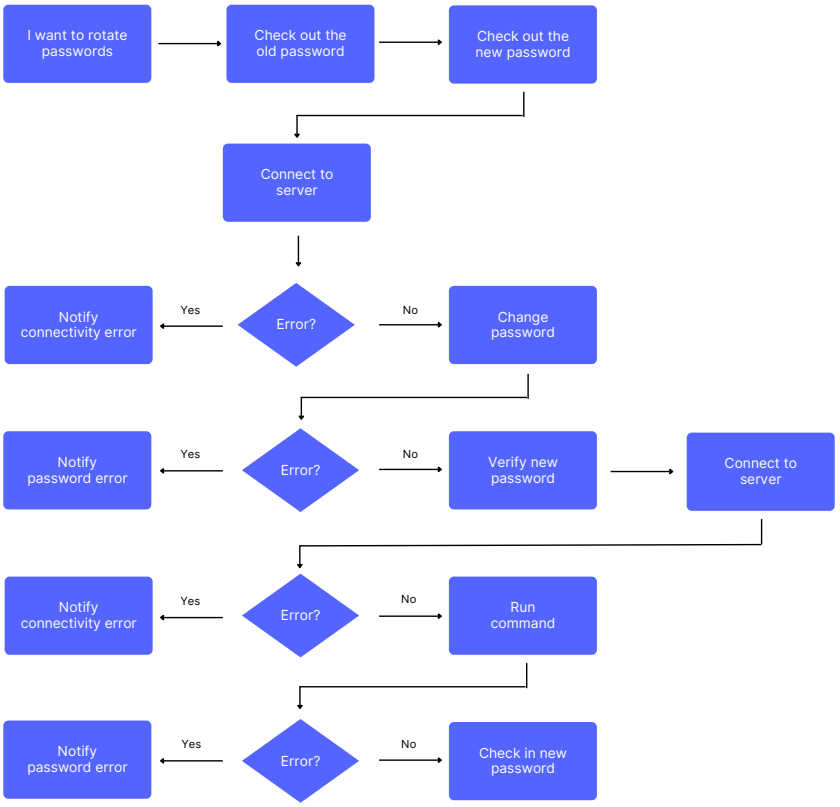
Managing Asynchronous Workloads

Serverless architecture helps run behind-the-scenes tasks without interrupting the application’s flow. This creates a smoother user experience.

What is Serverless Event-Driven Architecture?

Serverless, event-driven architecture refers to workflows that trigger in response to an event. Since it's serverless, you don't have to maintain a server — they can construct the workflow, and leave it be!

Let's say, for example, the workflow in question is arranged to accomplish password rotation (we know, yikes). Instead of the engineer manually rotating each password, the event-driven workflow rotates the passwords automatically! To do this, the engineer sets the workflow to trigger every 60 days — this is the event that drives the workflow.



Every 60 days, when triggered, the workflow automatically:

Remembers old passwords

Changes and verifies new passwords

Checks in new passwords

Reports any errors within the system

Platforms (like Direktiv!) that are designed for serverless architecture use CloudEvents to trigger simple serverless workflows, drive integrations, and respond to changes in your environment, making serverless architecture work that much smoother.

Benefits of Serverless Event-Driven Architecture

Instead of us trying to convince you on why you should adopt serverless architecture, we'll let these benefits speak for themselves:

Relieves Technical Debt

Technical debt involves choosing a quick but poor solution to complete a software task now, rather than using a better, more-fitting approach that would take longer to implement. The quick-fix solution creates technical debt, slowing down productivity, and causing hours of reworks that need to be done to fix these complex issues. Serverless architecture allows you to have long-lasting serverless, event-driven solutions the first time around, without any technical debt.

Minimizes Risk of Error

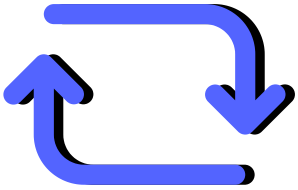
Utilizing event-driven architecture minimizes the potential for error. When working on repetitive tasks, it's natural that you may occasionally make an error (you are, after all, human). Event-driven workflows complete tasks error-free in a matter of seconds. No need to encrypt dozens of emails manually — the workflow does that.

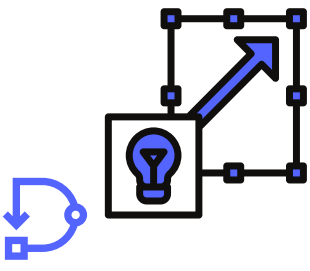
Saves Time from Days to Seconds

Think about how many menial tasks you complete on a daily basis. Automating these tasks saves huge amounts of time. Consider this — instead of engineers manually performing health checks prior to site redundancy failovers, the workflow does this automatically. This task then takes place automatically in the background, so you can focus on writing code.

Offers Enhanced Repeatability and Replaceability

Engineers build serverless workflows using containers and microservices. This makes serverless, event-driven workflows easy to repeat and replace. With packaged pieces, adding or replacing functions doesn't interrupt the entire workflow.





Bolsters Scalability Across all Infrastructure

Serverless, event-driven workflows instantly scale as needed. In response to traffic changes, functions are automatically repeated or removed, instantly scaling to the needed size.

Exploring a Platform Agnostic, Cloud Native, Event-Driven Serverless Workflow Engine

Direktiv is a platform agnostic, cloud native, event-driven serverless workflow engine that supports complex business workflows or simple scheduled tasks without having to modify your organization's DevOps.

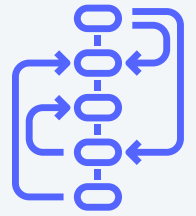
There's no need to re-skill or re-code your DevOps, since our platform runs all plugins and extensions as containers. This enables IT teams to use their preferred language, current CI/CD platform, and current skills. Additionally, our platform supports all coding languages, plugins, versions, and components. Think about it this way: If it runs in your current environment, that means you can run it as an extension to Direktiv.

Benefits of Direktiv

With our event-driven workflow engine, you can achieve faster and simpler digital transformation thanks to our serverless platform. Here's some of the ways our platform extends the serverless benefits:

Cloud Agnostic

Direktiv is cloud agnostic, meaning it runs on any platform, supports any code, and is not dependent on a cloud provider's services for running workflows or executing actions. With Direktiv, you have the power to leverage any Direktiv component on any environment supported by Kubernetes / Knative.



Simplicity

We make it easy to configure a workflow's components. Using only YAML and jq, you can express all workflow states, transitions, evaluations, and actions needed to complete the workflow. With Direktiv, users can integrate current code, containers, and processes seamlessly.

Reusable

By standardizing your code across all workflows, you can ensure that code always remains reusable and portable without the need for SDKs (or vendor-specific language).

CASE STUDY

Serverless Event-Driven Architecture

Recently, we worked with an Independent Software Vendor (ISV) to enhance their password rotation policies. Password rotation policies didn't maintain consistency across the entire IT environment, resulting in a greater security risk. Since data leakage has a significant financial impact, the ISV looked to Direktiv as a solution to automate password rotation and mitigate security risk.

The Problem

Manual password rotation is a long and tedious process that can take days to complete since IT teams have to change API passwords, appliance passwords, application administrator passwords, and more. Often, it's challenging to ensure that password rotation is compliant with security policies, as human error can occur while generating and logging new passwords.

The Solution

The goal was to create event-driven workflows that streamlined the password rotation process, reduced the risk of human error, strengthened the company's security, and maintained compliance with password rotation policies.

Using Direktiv's serverless, event-driven architecture, the Independent Software Vendor was able to create password rotation workflows for Linux, network infrastructure, VMware applications and APIs, and storage infrastructure. The repeatable micro-workflows conducted a password rotation process that created a new password in HashiCorp Vault, changed the existing password, and validated the new password. If the validation checks were successful, the workflow stored the password in the Vault. If the validation check wasn't successful, the workflow notified the IT team to troubleshoot the issue.

Eventually, the Independent Software Vendor extended the password storage workflow to also support AWS Secrets Manager and CyberArk.

The Business Outcome

Thanks to the vendor's new event-driven, password rotation workflows, **IT teams were able to save an estimated 4 days worth of effort each month** that would've gone to manually resetting and generating passwords. These workflows also guaranteed the compliance of password rotation policies and eliminated the risk of human error.

Check out the full case study to learn more about how time-consuming password rotation policies are a thing of the past with event-driven architecture.

Final Thoughts

Are you ready to join the 40% of IT professionals that are adopting serverless architecture and reap all the benefits that serverless solutions provide? By adopting serverless architecture, you're one step closer to achieving the best of both worlds with flexibility that allows you to plug into existing builds, and control that enables you to move your workload to wherever it runs most effectively. With serverless event-driven architecture, you will:

- Instantly save yourself hours of time on menial, repetitive tasks
- Eliminate possibilities of human error... no more going back to correct mistakes!
- Create workflows that scale with your traffic automatically

It's time to harness the power of a vendor-agnostic, cloud-native platform and discover the ease of serverless solutions. If you're ready to take the next step and implement serverless architecture to build simple yet powerful event-driven workflows, get started with our open source library.

About Direktiv

Direktiv is cloud native and serverless, which means it's cloud, vendor and platform agnostic. It uses the latest event-driven architectures to drive the workflows or microservices orchestration. Users create elegant and simple workflows using a descriptive industry standard. Direktiv allows developers to use their current processes and the freedom to use their preferred (or ANY) coding language through the use of containers.

Learn more by visiting https://direktiv.io/.

Learn More

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