



Buddy

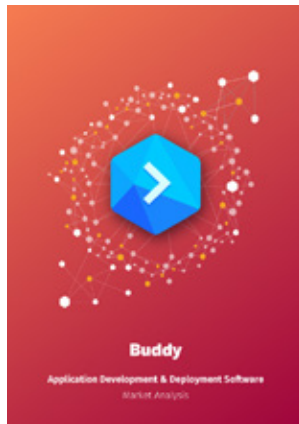
Decentralized Application Development Automation
Whitepaper

Table of Contents

Introduction	4
Summary	5
Decentralized Development Automation Platform	7
Problem Definition	7
Buddy Solutions	9
Buddy for Blockchain Apps	25
The Problem	25
Buddy Solutions	26
BUD – The Token	38
Why Token	38
Token Users	40
Token Utility Summary	41
Token Sale	42
Crowdsale Details	42
ICO Timeline	42
Token Allocation	43
Use of Funds	44
Roadmap	45
The Team	46
Legal Disclaimer	51

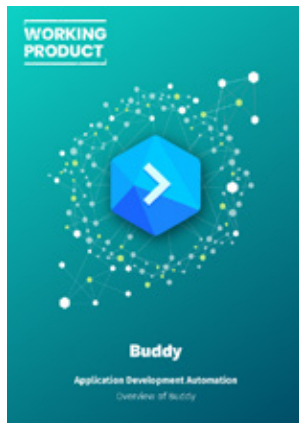


Recommended reading



Market Analysis

A dive into Application Development & Deployment Software, the rapidly growing market valued to become \$345 billion by 2022



About Working Product

Why Buddy is a winning development automation platform that serves over 7,000 developers every day across 120+ countries. Featured customers: INC. Magazine, CGI.com, ING Bank.



Token Sale

For a detailed overview of our Roadmap, Timeline and more, read our Token Sale details



Introduction

We are lucky. As developers, we are privileged to have built a solution that has quickly become a central part of our fellow developers' workflow. Trusted by teams all over the globe and partnered by world leaders, we have decided to take part in the revolution fuelled by Blockchain tech.

Our vision is to become the backbone on which talented people can build world-altering apps & services. The goal is to offload everything from developers that can be automated – giving them back the time for being creative.

This paper explains the thriving application automation development industry and summarizes this \$110B market. It describes what the Buddy platform is and how it delivers value to its customers. It then outlines plans for introducing key new additions to the service with crowdsale-allocated funds.

Thank you for joining us on this journey.

The Buddy Team



Summary

Problem Statement

Organizations battle with implementing development automation, despite its revolutionary potential. This is because:

- Application Automation (DevOps) is a huge boon to organizations but is challenging to adopt.
- The huge amount of various tech, stacks and workflows means it is too difficult for a single party to provide the seamless automation to cover all the popular programming languages, frameworks and services - including Blockchain tech.
- Large teams using DevOps as a key differentiator and value driver, struggle to scale their operational infrastructure.

Our Vision - An Outline

The value derived from development automation applies to all IT organizations. To unleash mass DevOps adoption, a solution must have:

- A culture-shifting approach – using flexibility and excellence to support cross-teams to reach their mission goals and maintain high-level performance.
- An open model that can serve as a framework for skilled app developers to provide quality add-ons for differing stacks of development automation.
- Auto-scaling features - providing awareness of what can be offloaded to a public network with respect to the company's intellectual property and policies.



Our Advantages

As an established SaaS business in a rapidly growing market, Buddy is uniquely positioned with:

- A blistering product that successfully solves real-life problems of a \$110B market, including such respected brands as Inc. Magazine, Docplanner and CGI.
- Partnerships with Google, GitHub, Docker, Microsoft and Amazon by participating in the [Google Cloud Launcher](#), [GitHub Marketplace](#), [Docker Store](#), [Azure](#) and (soon) Amazon Web Services Marketplace respectively.
- The self-hosted Enterprise version of the platform ready to be used as the foundation for the decentralized application development automation.
- Closely-bonded team of 16 working together for years – most of them partners and shareholders – proven to deliver high quality solutions for challenging problems

A Brief History of Buddy

The team was founded in 2007 while bootstrapping Springloops, a popular Subversion hosting platform with deployment tools for web developers. The earned know-how, experience and new technology trends eventually led us to inventing Buddy.

- Established in 2015 with a mission to vertically apply automation into the application development process, so that developers can focus on creative challenges, not waste time on repetitive tasks
- Released in 2016 to a huge positive response from the community
- Quickly became a partner of Google, Github, Microsoft and other key players in its quest to help developers deliver faster & better-quality products
- Since 2017, the team, excited by the traction, has been delivering updates and improvements on a fast track of weekly releases. 



Decentralized Development Automation Platform

Problem Definition

Large organizations run hundreds of builds, tests and other DevOps tasks every day.

Some companies execute thousands of tests every day, and all take hours to complete. In order to build faster (and get results faster), they invest heavily in their build infrastructure. As a result, their enterprise DevOps infrastructure is complex, costly and requires 24/7 maintenance. But this is not where the business value is. It's in **shipping**—not configuring or maintaining.

There is also the challenge of parallelism. To speed up delivery times and eliminate unnecessary queues, organizations want to do as much as possible simultaneously. Not only run multiple pipelines at once, but also execute builds and actions *within* pipelines at the same time. This requires intensive effort planning and configuring. This is another pressure on the infrastructure, as it requires proper isolation.

Scaling of DevOps infrastructure affects crucial development automation metrics:

- Deployment Frequency
- New Features, Fixes Volume & Customer Ticket Volume
- Time from Development to Deployment (Lead Time)

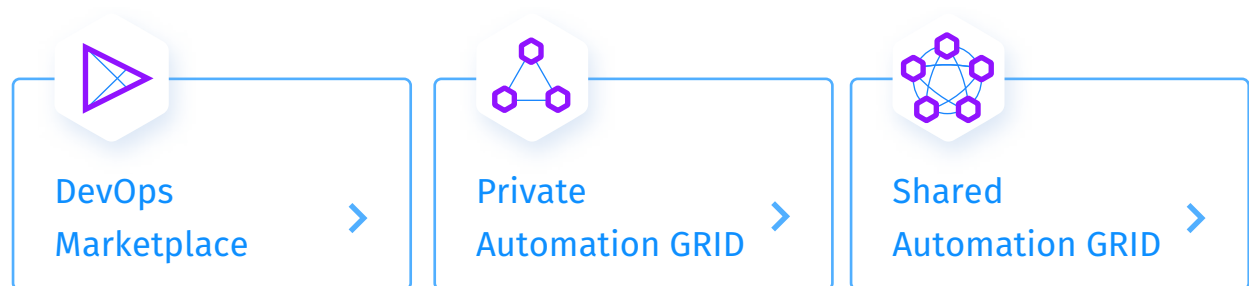


- Percentage of Failed Deployments
- Mean Time to Recovery (MTTR)
- Availability

These metrics strongly influence business, as companies can progress and perform only as fast as their IT lets them.

The question is: how to release organizations from the chore of maintaining DevOps infrastructure so they can focus on shipping and improving their automation metrics to boost their business?

We propose three solutions: the Open DevOps Marketplace, Private Automation GRID and Shared Automation GRID.



Buddy Solutions

#1. The DevOps Marketplace

The Idea

Buddy has over 80 carefully crafted automation actions that help users develop and deploy software. The actions are arranged into pipelines, making building, testing and deploying just a matter of a few clicks—even when it comes to complex applications & multi-cloud workflows.

To further extend accessibility, the platform is open to third party developers, who can deliver their own actions within the Buddy ecosystem and use them in their own development automation pipelines.



Actions: The Building Blocks of Automation Pipelines

Just as with Android apps in Google Play, everyone can submit their own actions to the Buddy DevOps Marketplace, free or paid. Buddy itself provides more than 80 built-in actions (see section *Actions, the steps of pipelines*). Here are some example ideas for 3rd party actions that can extend the current set of pipeline steps:



Third-party Actions from The DevOps Marketplace

ACTION CATEGORY	USE CASE
Code quality	Static code analysis to uncover coding standard violations, some typical anti-pattern instances, bad API usage, code duplication and complexity
Code quality	Analyze which parts of your code aren't covered by a test suite
Code quality	Automatically fix code style according to the selected code style
Visual Testing	Highlight visual changes in user interfaces that are introduced by each push
Performance monitoring	To improve the quality of web pages, run Google Lighthouse against a sandbox on every push using performance analytics
Performance monitoring	Run performance tests on newly built apps
Performance monitoring	Load test an app as soon as it is pushed to staging
Security	Encrypt application secrets and sensitive data in Git repository on every build
Security	Run website security scanning against an app launched in a sandbox
Security	Scan apps looking for sensitive details left accidentally
Continuous integration	Optimize images and other media assets for quality and size
Copyright protection	Protect images by adding an invisible watermark

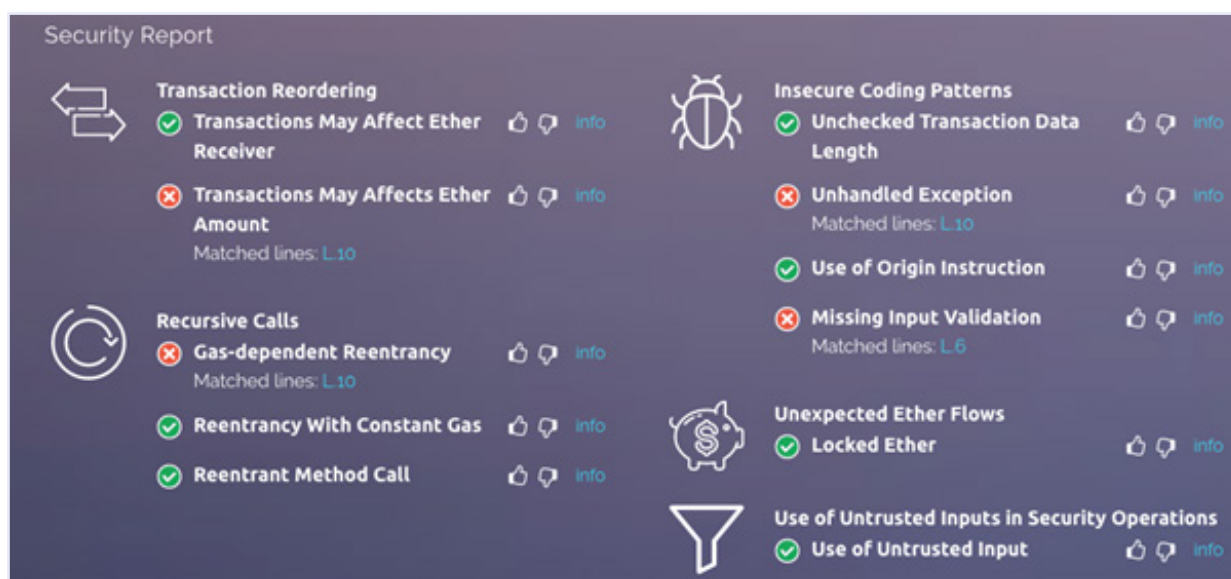


The number of possibilities is basically unlimited. Although some of the ideas require significant development effort, the value they offer to the community is tremendous.

Securify Example

Recent research shows that almost half of total existing Ethereum smart contracts have been flagged as vulnerable (8,833 of the 19,336)¹. Also, as shown by the Parity Wallet library incident², even the most experienced developers are prone to mistakes. Automating testing and making it easy to plug-into any dApps development workflow, would drastically increase the quality and safety of smart contracts.

[Securify](#) is a free service provided by Software Reliability Lab. It allows automated analysis of any Ethereum contract for critical security vulnerabilities and insecure coding through a website. Here's an example:



¹ <https://dl.acm.org/citation.cfm?id=2978309>

² <https://www.cnbc.com/2017/11/08/accidental-bug-may-have-frozen-280-worth-of-ether-on-parity-wallet.html>



Automating Security Reports with Buddy

Once Securify is published as a dedicated action to the DevOps Marketplace, anyone will be able to add it to their automation pipelines and report issues as soon as they are introduced into the codebase. This will drastically increase code quality and reduce shipment time by eliminating unnecessary code rewrites that, when done late, take much more time and require additional testing.

The team behind Securify have also created a more sophisticated service: ChainSecurity. If published to the DevOps Marketplace as an action, it can be used to run paid ChainSecurity audits. A Buddy user could, for example, put it in a pipeline executed on every push to the staging branch, meaning that the smart contract is ready for final testing. Since the handling of audits is automated, these results, once ready, would be sent back to the action via a proper end-point marking the branch passing or failing.

The Marketplace Economy

In the application development landscape a successful marketplace built around an ecosystem is quite typical. All major players, such as Google Cloud or Amazon Web Services, use their marketplaces as a drive to help their communities grow and adopt new solutions.

In 2015, Atlassian Marketplace hit \$120 million in sales³. In the same year, Envato, the WordPress marketplace, reached \$US73 million in revenue⁴. Buddy knows the economy of marketplaces very well as it is already a part of various ecosystems: Microsoft Azure Marketplace, Github Marketplace, Google Cloud Launcher, and Docker Store.

³ <https://techcrunch.com/2015/12/15/atlassians-marketplace-for-third-party-devs-hits-over-120m-in-sales/>

⁴ <http://www.afr.com/technology/envato-the-most-profitable-startup-you-havent-heard-of-20161025-gs9xm6.html>



Buddy will help third party developers make a profit by charging for their solutions submitted to the DevOps Marketplace, at the same time allowing them to publish plugins for free. It will *require* that the authors who want to participate in the marketplace allow free usage of their apps by non-commercial open-source projects, thus helping the whole Blockchain technology ecosystem grow.

We strongly believe in the idea of marketplaces. Buddy is already present in Github, Docker, Microsoft Azure & Google Cloud marketplaces, and with great results.

— Simon Szczepankowski, Buddy Co-founder

To encourage innovations and support talented developers, the marketplace will be curated to allow only quality submissions to protect authors from copycats. The developers, in return, will help advance the Blockchain community. The submitted plugins will be required to be open-source in the part which is executed on Buddy Instances.

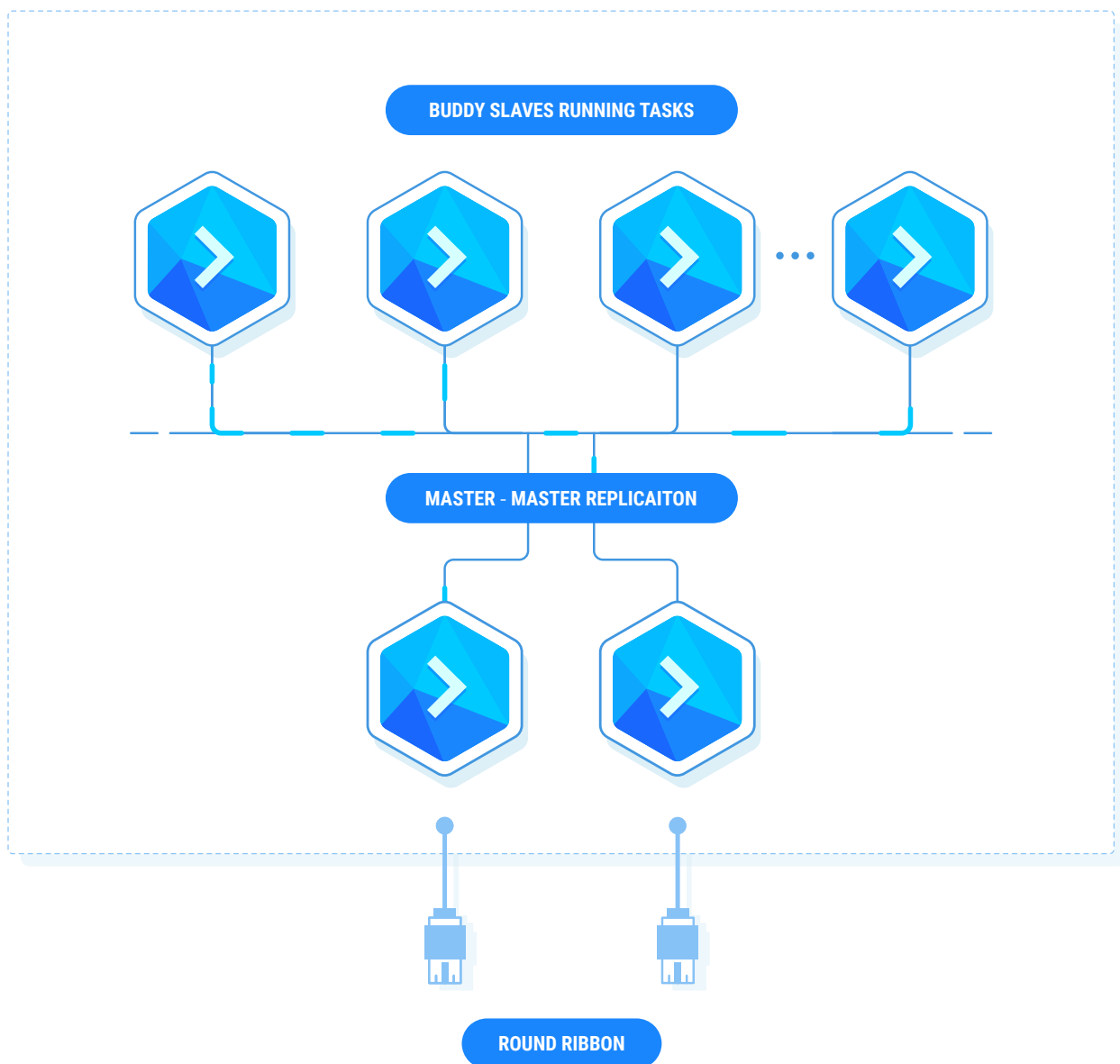
The marketplace content curation will be undertaken by a dedicated Decentralized Autonomous Organization run by Buddy token holders.



#2. Private Automation GRID

The Idea

The idea is to create a network (GRID) of Buddy instances that will use auto-discovery and replication capabilities to create High Availability auto-scalable infrastructure for development & deployment automation. Depending on workflows and policies, users can choose if they want to use their own bare-metal infrastructure, a private cloud, or IaaS to run Buddy instances.



All Things Private

DevOps is critical to business and, at its core, it cannot fully rely on distributed resources such as home-based computers (fog computing). High latency times, reliability issues and security concerns are a no-go for Enterprises. Instead, Buddy's decentralization happens on top of a trusted infrastructure, with the user in full control of what is trusted.

Auto-Scaling

Once new Buddy instances appear in the network, they automatically decide on their roles. The first two create a master-master replication to create a High Availability system. Every next instance will be used as an agent to run more pipelines in parallel.

If allowed, Buddy can create new and remove redundant instances on-the-fly, depending on the load. It can use integrations with IaaS providers for this, such as AWS or Google Cloud, or use other trusted Buddy GRIDs provided directly by Buddy or certified partners.

For example: To meet the load demand during the day, Buddy can utilize a user's AWS account to replicate itself outside the private network, and kill those instances once the workday is over - automatically on-the-fly and within set constraints.



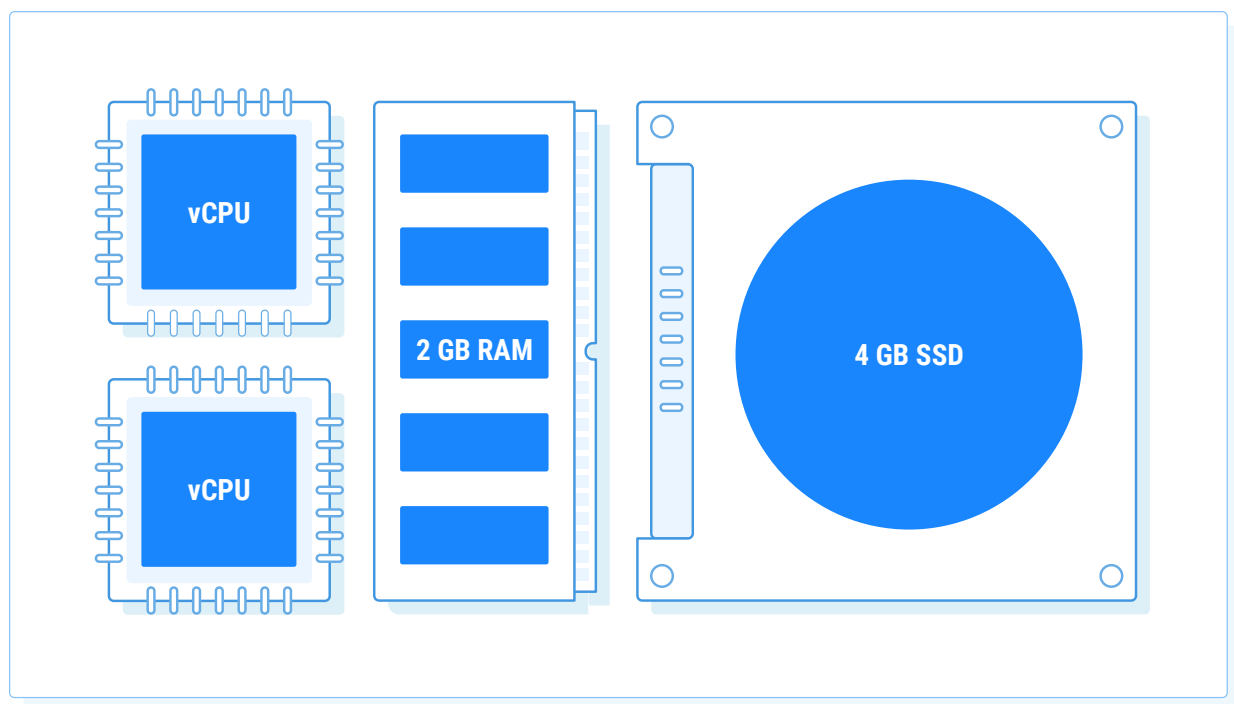
#3. Shared Automation GRID

The Idea

The idea of the Shared Automation GRID is to offload high-intensive automation tasks to a network of Buddy instances run by users with available resources. Especially in cases where trusted infrastructure is not required.

Compute Unit, the Basis of the Shared Automation GRID

A Compute Unit is the smallest entity that can be assigned as a node of the Shared Automation GRID in exchange for a BUD token by the instance owner. The specification of the unit is: 2 vCPUs, 2GB of RAM and 4GB of SSD storage.



Buddy follows the definition of a standardized vCPU and will only accept those instances that pass the benchmark.

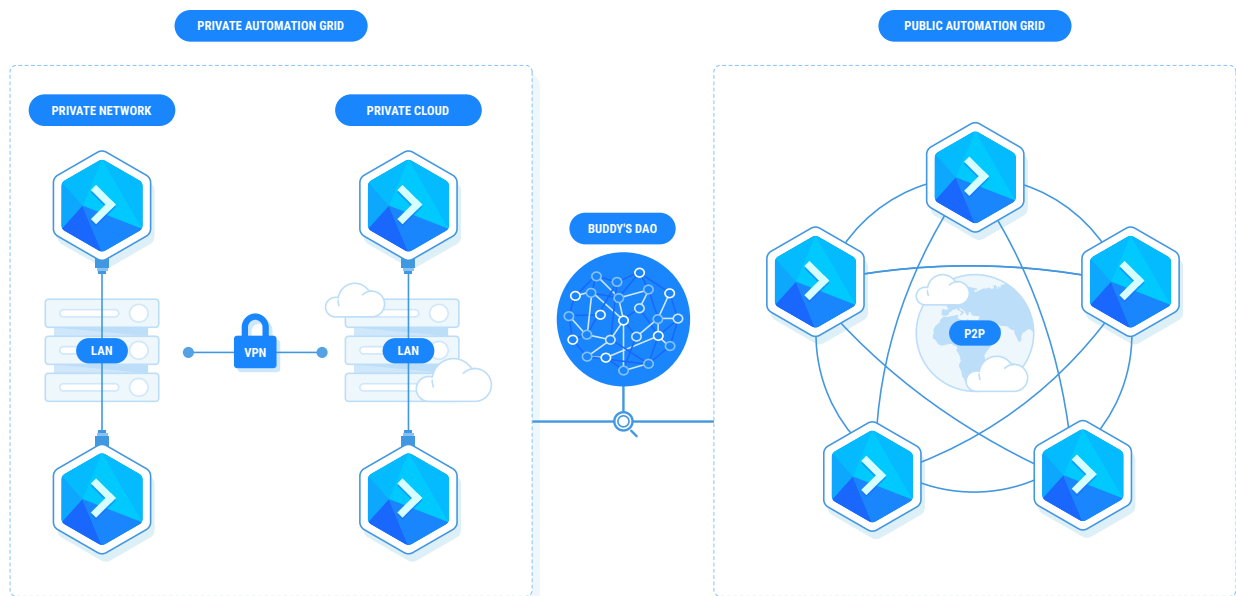


The storage is required only to perform requested tasks, save their results and transfer it to the requester. As soon as the tasks are completed, the storage is released.

Expanding from Private to the Shared Automation GRID

Organizations cannot use swarm-based supercomputers for core development automation.

However, there are many resource-intensive tasks where it may be possible to use decentralized networks to gain an advantage.



For example: A Private GRID of Buddy instances can be used to build an application and run it in a Sandbox for further testing & iterations. Then, dozens (or even hundreds) of Buddy instances from the Shared GRID can run tests against it. In this way, the results can be provided in minutes, not hours. There are already hundreds of Buddy users who run thousands of tests of various kinds (integration, end-to-end, acceptance) who can put the Shared Automation GRID immediately to work.



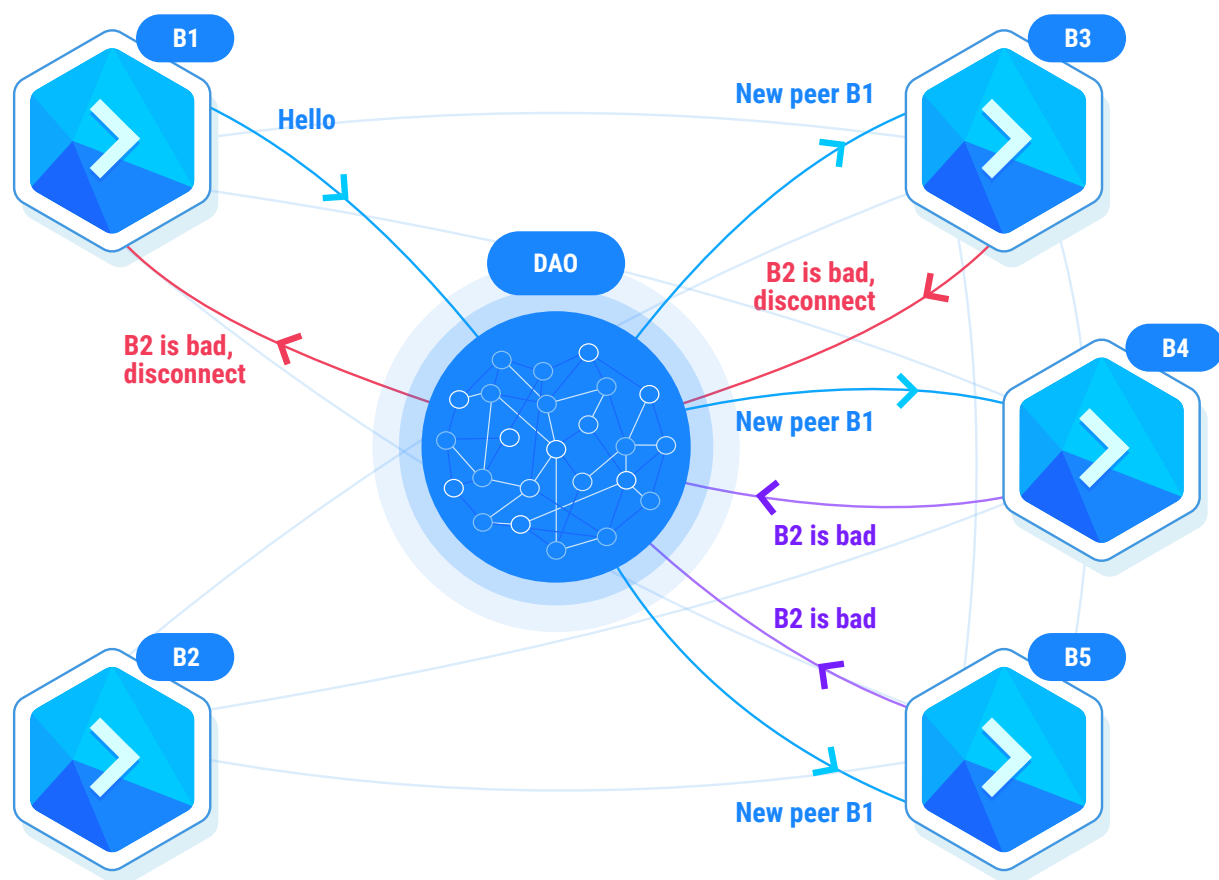
There are other use cases too, where trust is not the decisive factor, such as stress testing, performance monitoring, or availability monitoring of production environments from various regions.

Users will be able to mark selected pipeline actions or whole pipelines to be offloaded to the Shared Automation GRID.

Discovery of Buddy Instances

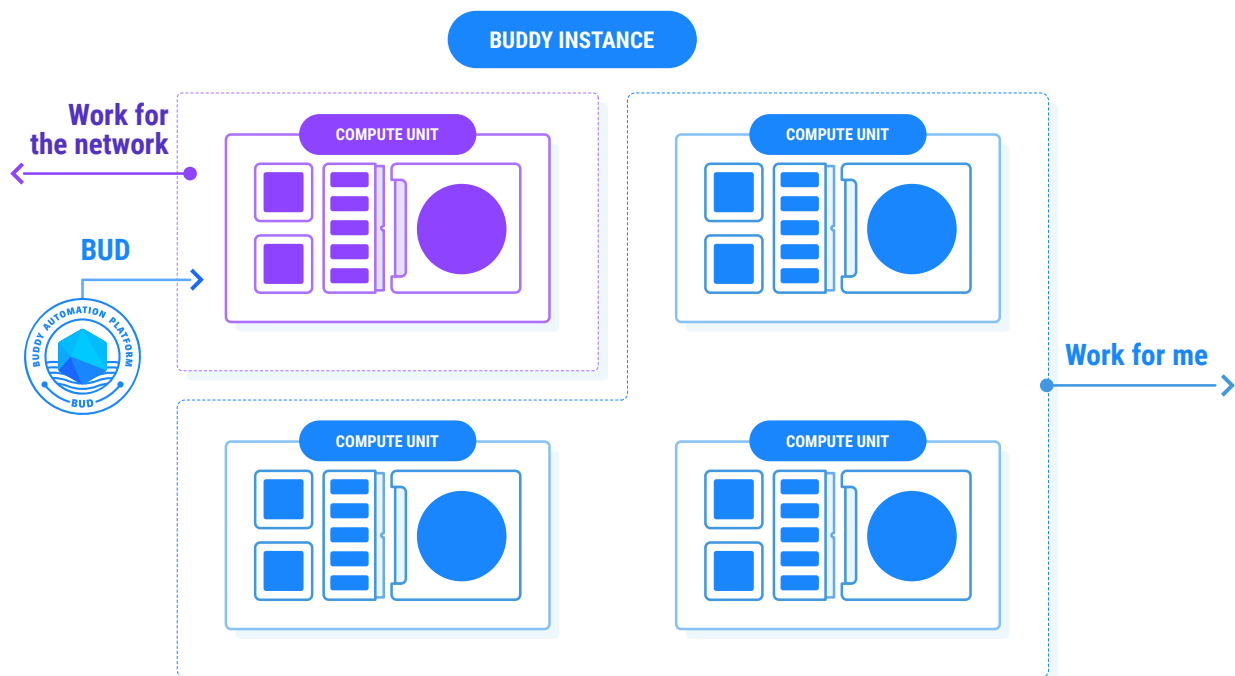
Buddy uses its own P2P network whose peers are moderated by Buddy's DAO. New peers report their address to the organisation, which is later used to fetch lists of peers by other nodes.

In addition, nodes can report to Buddy that a peer is broken or dishonest. This may be due to technical issues (e.g. no connection) or due to abuse.



Economy of the Shared Automation GRID

For renting the Compute Unit, the Supplier will be awarded a Buddy token (per second billing) and only when a task is completed. The maximum price that the Requester is willing to pay is settable. However, significant savings are not the only reason to use the GRID. Some scenarios can only be completed by swarms of nodes, such as DDoS attack simulations (confirmation required by the target). Others may require only temporary bursts of resources. For example: making a screenshot of a website on multiple devices after a merge to the stage branch.



Besides setting the number of Compute Units to assign, Suppliers also decide on the minimum price and provide a schedule when to sell them and at what price. For example: during the night, when the developers are not working and the servers are running anyway, they can sell more Units for a lower price—while not selling anything during the day.

NOTE: It will also be possible to dedicate Compute Units to open-source projects.



Supplier Safety


Only actions accepted in the DevOps Marketplace can be run on the Shared Automation GRID. The actions have to be open-source in order to be reviewed by the DevOps Marketplace curators. This is the first level of GRID protection against abuse. In addition, bad actors will be eliminated by Buddy's DAO and reporting system, both manual and automated. Moreover, the hosts of Buddy are protected by isolation of the Docker containers.

Advanced Parallelisms as a Driver for Demand

To create strong demand for Buddy's Compute Units, there is a 3-layer parallelism system. This can divide pipelines and their actions into separate jobs that can be run simultaneously. This will encourage usage of additional resources outside the private network and, at the same time, help users deliver faster.

Project level: Run Multiple Pipelines At Once

The number of concurrent pipeline runs is limited to the Compute Units available. Running 2 at once, requires **2 Compute Units**.

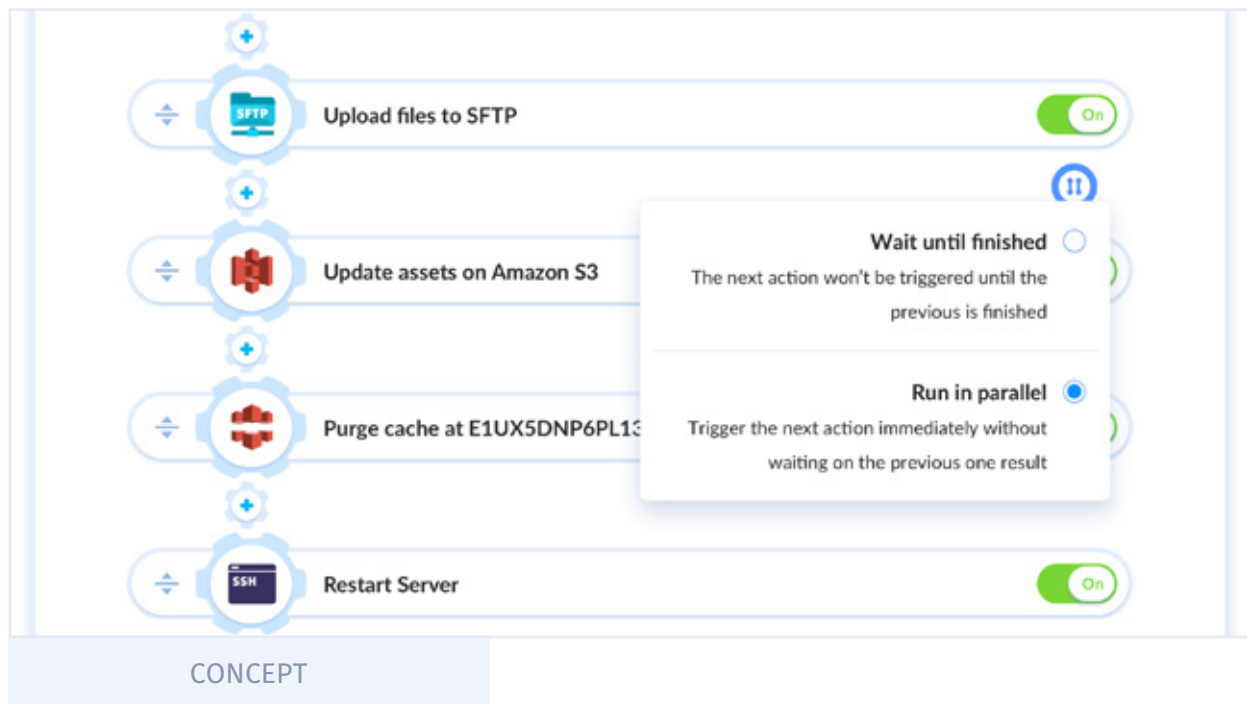


REAL SCREENSHOT FROM THE APP



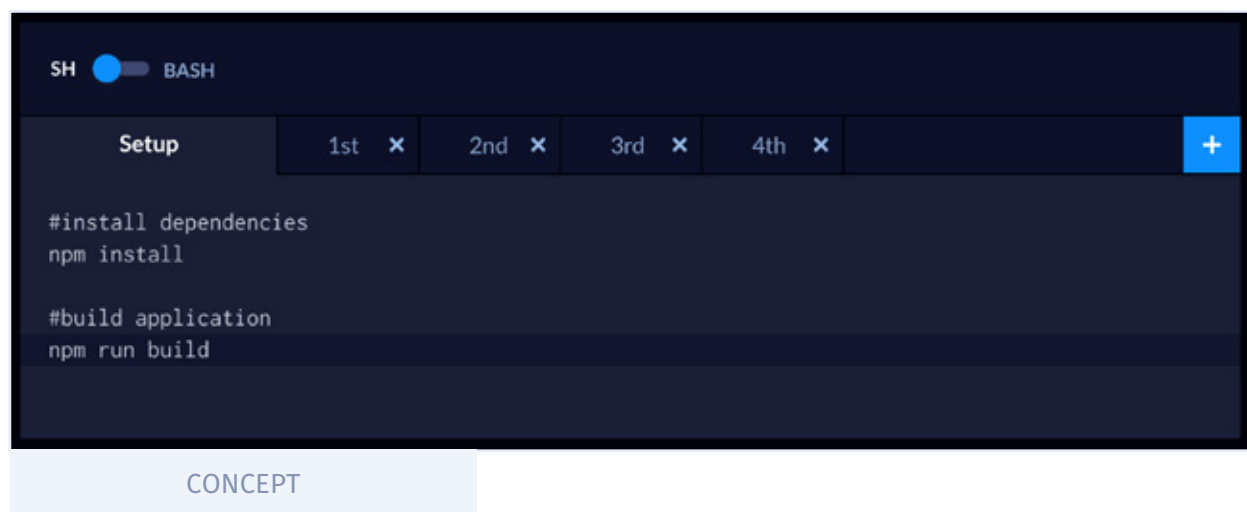
Pipeline Level: Run Many Actions At Once

Multiple actions can be run at once within a pipeline. Running 2 pipelines with 2 concurrent actions requires **4 Compute Units**.



Action level: Run Many Tasks At Once

An action can be divided into tasks running in parallel. Running 2 pipelines with 2 concurrent actions with 2 tasks each, requires **8 Compute Units**.



Automation GRID vs. Golem and SONM

Buddy's Automation GRID is neither similar nor an alternative to any planned supercomputers like Golem and SONM. Here is why.

Automation by Design

Buddy's pipelines are executed automatically on the Shared Automation GRID as the grid model is much simpler (Compute Unit usage per second). There are no steps involving purchasing computing power or selecting hardware & application types on each job execution. Buddy users run hundreds of tasks daily: the service has been designed to run them repeatedly without any user interaction. Supercomputers, on the other hand, are more about requesting completion of one-time jobs with very large computing power needs (e.g. the pharmaceutical industry).

Fixed and Local Resources

Development automation tasks are often resource intensive, not only when it comes to computing power, but also RAM and disk storage. Supercomputers try to implement fog computing and use all kinds of devices (tablets, smartphones, routers), as they are designed more towards large computations such as CGI rendering or modeling. There are dozens of tasks that require at least 1 GB of RAM and fast local storage to run - such as building Java applications. If not, they will terminate, which makes generally-oriented supercomputers unusable. For the same reason, it is also difficult to design applications by third parties, not knowing what resources are available at runtime.

Control

At the moment there is no 100% solution to protect intellectual property from snooping workers. For this reason, even if the above were not



a major issue, enterprises are unable to use supercomputers to scale their application development & deployment automation operations.

On the other hand, Buddy puts users in full control, allowing them to set up their own Private Automation GRIDs. This means their work – including source code and apps at the testing stage – will never leave their private network.

User Experience

Buddy features a proven and highly-praised user interface which makes creating and running automation operations incredibly easy. Supercomputers have to be generic, which requires building wrappers around them to accommodate specific workflows.

No Overhead and No Fees

There are a lot of steps involved in posting a job to a supercomputer: calculating costs, depositing money to wallets, or handling arrangements. Moreover, the communication is handled by high latency layers, such as P2P or Torrent. When it comes to Buddy, the Private Automation GRID is owned by the user, so the tasks are executed off-chain instantly with no token fees. The Shared Automation GRID uses P2P and Buddy for peer discovery only, keeping the main communication direct (i.e. no Torrent for loading and offloading data).

Challenges


Supercomputers still face a lot of technical challenges which can put their projects at high risk. There are still projects which are impossible to be driven on this type of infrastructure. Buddy's Shared Automation GRID is much simpler and uses existing technologies. It is about serving *existing* market needs as soon as possible—not creating new ones.



As stated before, the Shared Automation GRID is not an alternative to supercomputers. As a matter of fact, third parties are welcome to create supercomputer-oriented actions and publish them to the DevOps Marketplace. As the Buddy Team, we are also very excited about developing actions for Buddy's pipelines that will utilize their power. For example, an action that will offload the processing of large media files to a supercomputer and wait for the results, instead of processing them within its own Compute Unit, or an action that will use SONM for machine learning to provide better code analytics results.

Community & Going Open-Source

One of our main goals is to have a legacy of helping the Blockchain development community move faster. This is what we believe in. This is why we want Buddy to go open-source after the ICO has been released.

Each instance of Buddy will contain the source code of Buddy in an embedded Git repository. It will be used by an existing auto-update mechanism to build new versions of Buddy, and update the ones currently running. 



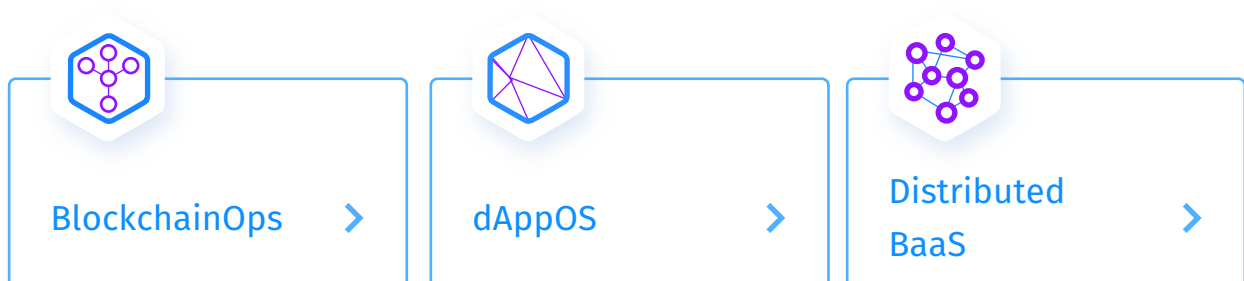
Buddy for Blockchain Apps

The Problem

Starting with smart contract development isn't simple, even for experienced off-chain developers. There are a couple of major concepts that programmers have to understand before any work can start: the Blockchain itself, EVM, solidity, Geth, and dApps, to name just a few. There are also many myths around Blockchain development, which can create challenges to the adoption of Blockchain technology & the development of smart contracts or dApps.

Once just dApps and smart contracts get more complex, bugs and flaws are introduced to the system—waiting to be exploited by bad actors, which may lead to the loss of millions of dollars worth of cryptocurrencies.

Moreover, there aren't any tools mature enough to assist with Blockchain-specific development tasks or build trust between project sponsors/founders & their developers. However, this is slowly changing thanks to projects such as Truffle, Lisk—and now Buddy.



Buddy Solutions

#1. BlockchainOps

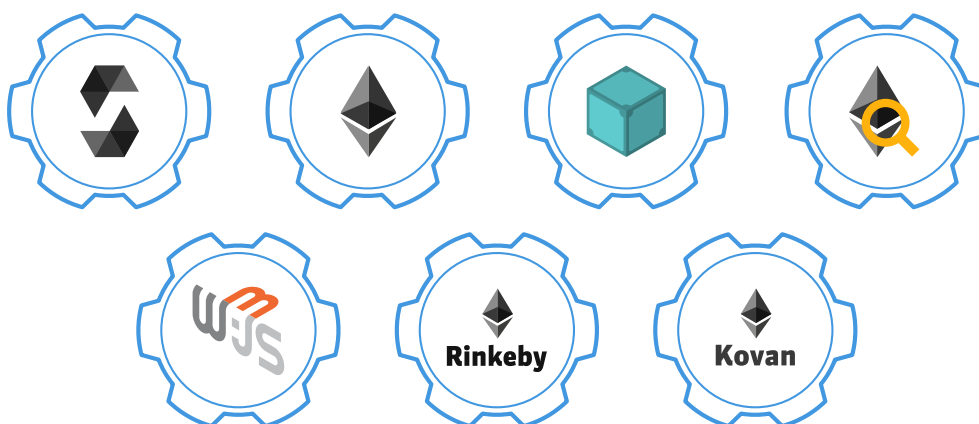
The Idea

In the same way that Buddy has been successful at introducing development automation to web developers, Buddy is also pioneering development automation of Blockchain-based projects.

Blockchain developers can use the service to design automation pipelines with ready-to-go actions: from compiling and tests, to deployments, custom scripts, and dApps monitoring. This process is very easy and resembles building a house of bricks: you pick an element that you need and put it in the desired place, adjusting the configuration as necessary.

The dApp Development Automation Actions

In the section *Actions: The Building Blocks of an Automation Pipeline* we have listed example ideas for 3rd party developers for the DevOps Marketplace. Here, we'll do the same for actions dedicated to development automation of Blockchain-based apps.



BlockchainOps Actions From The DevOps Marketplace

CATEGORY	USE CASE
Security	Test solidity contract for common security issues and anti-patterns
Optimization	Analyze Solidity contract execution flow to find optimizations to reduce gas usage by suggesting removal of unnecessary computation steps
Analytics	Analyze Solidity contract and recommended optimal STARTGAS for their end-users by checking computation steps and transactions data
Analytics	Record and monitor gas usage of smart contracts run against testnets so users can notice bad coding decisions
Deployment	Build dApp assets and deploy them to IPFS
Testing	Run smart contract tests against a dynamically created testnet
Testing	Run Geth commands to test smart contracts against live blockchains
Continuous Integration	Compile a Truffle project on every push and run migration tasks for tests, staging & production
Analytics	Analyze code using recurrently executed pipelines for recently discovered security issues and alert developers when an issue is present in their codebase
Code Review	Look for backwards incompatible changes in Solidity and warn developers accordingly



Example Pipeline for a dApp Project

Rentcherry is an example of a Decentralized Home Rental Platform. It leverages blockchain technology to provide seamless rental experience.

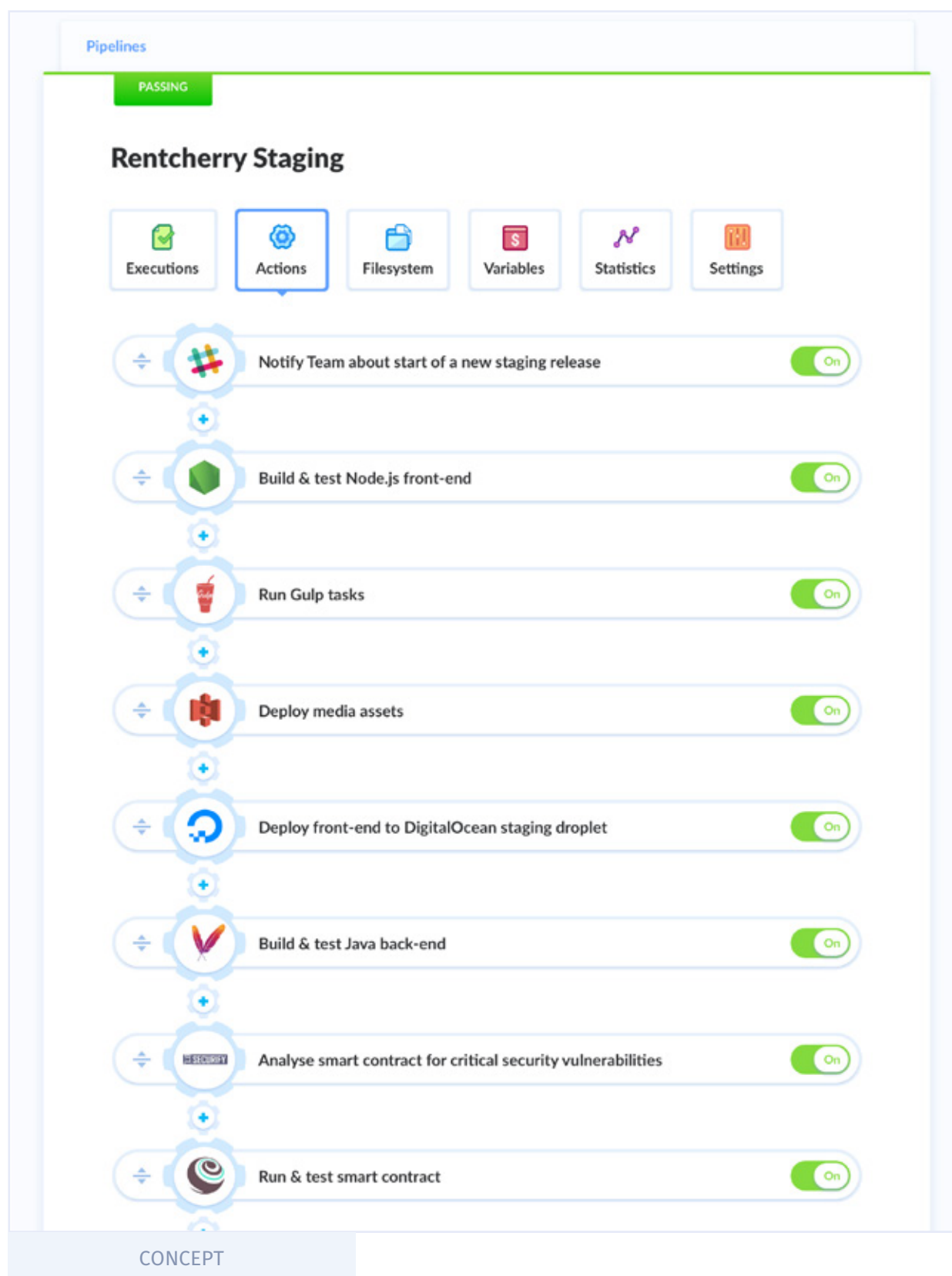
The platform stack consists of:

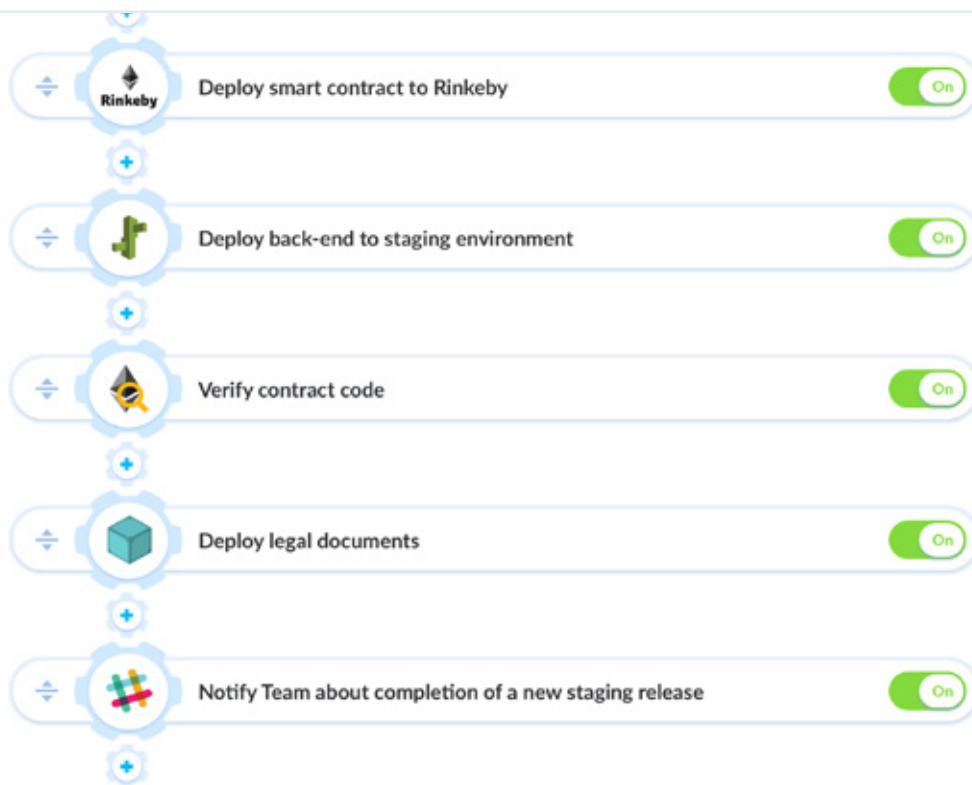
- **Node.js** for the front-end page
- **Spring Framework**, Java, for the back-end logic
- **Truffle**, an Ethereum development framework, for their smart contract which handles trust logic of multi-party rental agreements
- **Slack** for team communication
- **Sentry** for error tracking
- **DigitalOcean** droplet for front-end page hosting
- **Amazon Elastic Beanstalk** for back-end application hosting
- **Amazon S3** for large media files such as tutorial videos
- **Ethereum Blockchain** which runs their smart contract
- **IFPS** for storing data that requires an immutable distributed data store

Rentcherry uses several pipelines to handle their development workflow, each for development, staging and production. In this example we will analyze their staging pipeline. This pipeline is executed on every push to the stage branch, meaning that the application is ready for final testing and is close to production release.



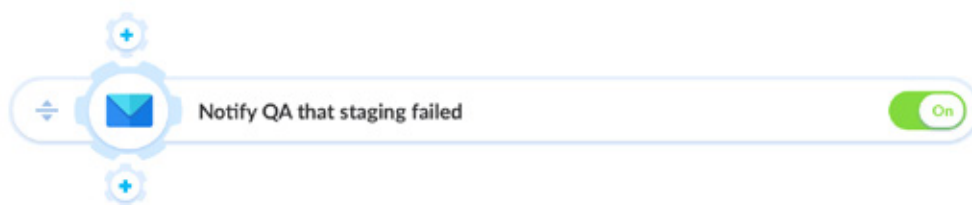
Rentcherry Staging Pipeline





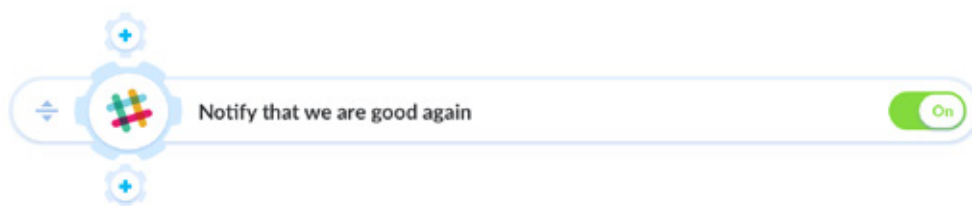
ACTIONS RUN ON FAILURE

These actions will be run if one of the primary actions has failed. This is useful for setting notifications that will inform you in case something goes wrong.



ACTIONS RUN ON BACK TO NORMAL

These actions will be run if the pipeline status has changed from failed to successful.



CONCEPT



Steps Description

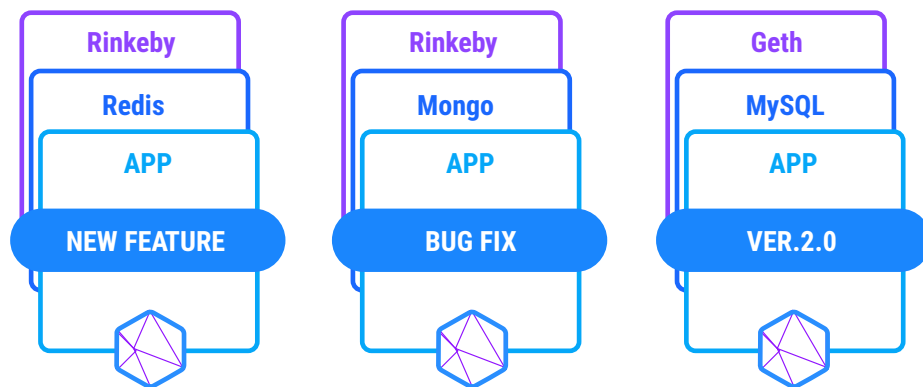
STEP	TYPE	TASK
1st	Slack	Notify the Team that a new staging release has just been initiated
2nd	Node.js	Build and test the front-end application with <i>an npm test</i>
3rd	Gulp	Minify CSS, optimize images and encode videos to an optimal format
4th	S3	Deploy all static assets to the Amazon S3 bucket & invalidate outdated CloudFront objects (optional)
5th	DigitalOcean	Deploy the Node.js app to the DigitalOcean droplet
6th	Maven	Run Maven to build and test the back-end
7th	Securify	Run Securify analysis—an example of how continuous security testing can easily become a part of a proper Continuous Delivery pipeline
8th	Truffle	Run <i>truffle compile</i> in a preconfigured Truffle environment, launch a TestRPC & execute <i>truffle test</i> . Once finished, kill the TestRPC
9th	Rinkeby	Deploy the smart contract to the Rinkeby Testnet for staging. This action also passes the address of the deployed contract to the next action
10th	Amazon Elastic Beanstalk	Push the artifacts from the Maven action to Amazon Elastic Beanstalk with the previously deployed smart address set in the back-end configuration file
11th	Verify	Compare the smart contract's source code from the repository with what has been actually deployed to the blockchain (additional safety check)
12th	IFPS	Deploy legal documents such as terms of service to IFPS (only if changed)



#2. dAppOS

The Idea

Using Docker-based Sandboxes combined with native Linux Containers, Buddy introduces ready-to-use development environments called dAppOS. This is a turn-key solution for bootstrapping Blockchain-based projects like dApps. In general, these are usually a mix of front-end & backend stacks with trust logic residing on a Blockchain. Also, dAppOS, like Sandboxes, can be easily extended with additional services such as MySQL, Redis, Mongo or Elastic databases, so it is very easy to extend the development stack.



Development, Preview or Staging Environment

Every dAppOS can work in different ways: as a standalone environment for development, for testing & previews or can be assigned to a branch and updated on every push for collaboration & feedback. In this case each branch gets its own instance of dAppOS along with the attached services making it very easy to have an automated fully-isolated stack for every branch.

When dAppOS is used for testing, a pipeline executes tests by running them against a dApp with dynamically created testnets on every push running on the dAppOS.



dAppOS can be run on Buddy's Cloud so users can work on their projects from anywhere, office or home. Thanks to Buddy Enterprise, the on-premises version of the platform, users can run dAppOS on their private network and experience near-local performance.

A Training Tool

Something else important for the Buddy Team is that dAppOS may serve as a well-tailored foundation for smart contract/dApp projects used in Blockchain training. It makes Blockchain development education much easier, since programmers can focus on actual training and not on installing & configuring dozens of dependences and stacks trying to prepare their environment.

Sandbox & dAppOS Template Universe

With dAppOS, Buddy introduces the Template Universe, which is a marketplace for Sandbox & dAppOS templates provided by 3rd party developers. The templates greatly reduce friction to test and experiment with new Blockchain technologies. There are no install and setup problems—just run and play time.

An example template: a 3rd party can provide a sandbox that runs a smart contract in an enclosed testnet and a web UI for the contract's ABI / JSON Interface which allows easy interaction with the contract for non-programmers. Such a dAppOS can be automatically run for every code branch and updated on every push - just as Buddy's Sandboxes currently work. Testers and clients can use it to easily validate the business objectives of a contract, while developers can use it in Buddy's pipelines to build automated tests to be run against it.



dAppOS Swarms

Decentralized projects require truly decentralized development solutions. Running a lot of nodes in a single DC doesn't make it decentralized. With Buddy, it is possible to spin thousands of dAppsOS all over the world using Buddy's Shared Automation GRID.

dAppOS Swarms can exist only for the time required to execute tasks such as testing P2P features, messaging between nodes of different latencies, or hardening against decentralized attacks on the network.

The per-second billing of the Compute Units and the quick-to-launch vs. quick-to-kill nature of dApps makes it very cost effective. If it wasn't for these features, such use cases could be very expensive even for enterprise-scale businesses.

Buddy will have built-in dAppsOS templates for Ethereum, Hyperledger, NEM & Multichain development.



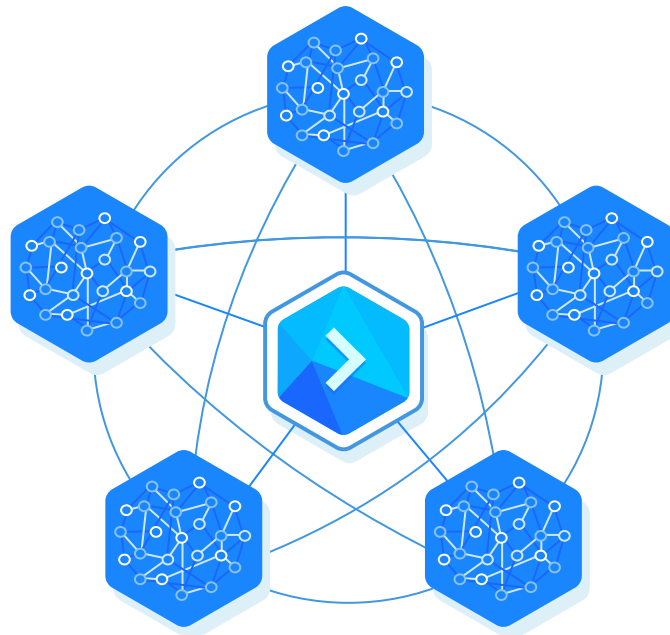
#3. Distributed Blockchain-as-a-Service

The Idea

Buddy allows Blockchain developers to be more productive by letting them focus on building exactly what they need, whether it's a financial application, supply chain tracking, an ICO, document notarization, decentralized authentication, or more.

A user can create a new Blockchain of any supported type with a single click. It's possible to deploy unlimited Blockchain nodes per Buddy Instance for multi/cross-chain applications. This can be further extended by adding more Buddy Instances from the Shared Automation GRID to create enormous networks of nodes that can be used to bootstrap new blockchains.

Buddy can also fill the blockchain with millions of blocks that can be used to run tests against the BaaS—automatically via Buddy's pipelines, or manually by QA departments.



Blockchains à la Carte

With out-of-the-box support for Ethereum, HyperLedger, Multichain, NEM and Ripple, creating multi-chain applications is no hassle. There is no need to piece together infrastructure and blockchain nodes with development environments. Organizations can make much smarter decisions, being able to easily evaluate multiple Blockchain technologies before going into production mode.

Large Blockchains On-demand

In a world where three billion people are connected online, cars drive by themselves and kitchen appliances can communicate with each other, developers have to test their solutions against truly decentralized networks. For that reason, Buddy allows provisional Blockchains that not only span across the Private Automation GRID, but also use the available Buddy Instances of other users contributed via the Shared Automation GRID. This kind of network, with Buddy Instances coming online and offline depending on the demand, produces scenarios closest to real life for decentralized application testing.

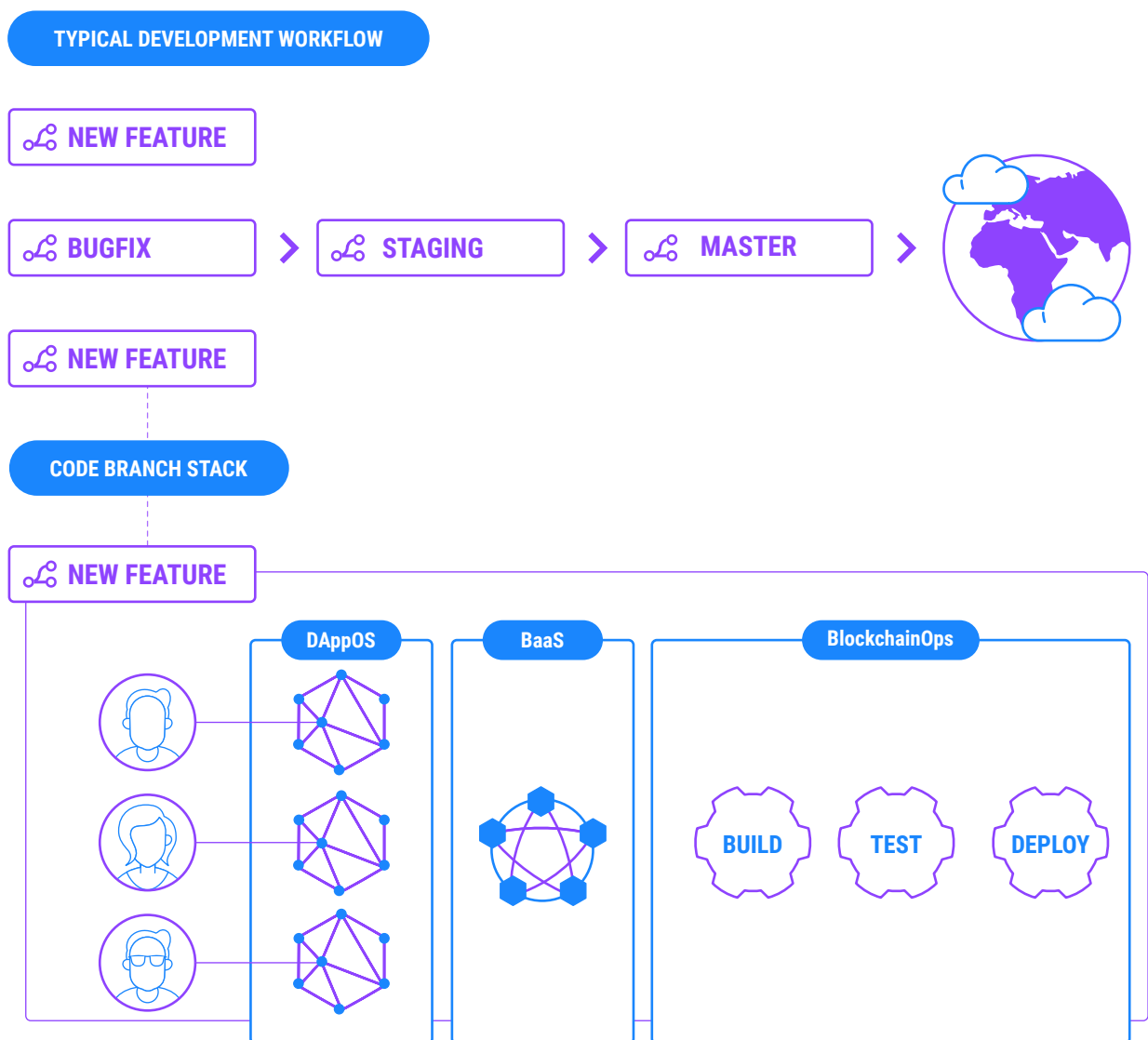
To make it cost effective and allow users to have large and persistent Blockchain networks – even with thousands of nodes – the price of nodes handled by other users will be counted by measuring the actual resource usage in relation to the price of the Compute Unit.



BlockchainOps + dAppOS + Distributed BaaS

Thanks to the open architecture of the platform, the BlockchainOps and dAppsOS modules, and the distributed BaaS service, Buddy significantly reduces the barriers that prevent developers from starting to learn and use Blockchain technologies in application development.

dApp Development Workflow with Buddy



BUD – The Token

Why Token

Our Vision is to Tokenize the App Development Automation Industry

BUD is a utility token based on Ethereum (ERC20). It creates a community-driven, decentralized economy in Buddy, the application development automation platform made for developers by developers. It unites developers, experts and users, both SMB and enterprise, in their goal to ship applications safer, faster and of better quality. It's a disruptive approach to the \$110 billion market—a market which is currently rapidly growing to an estimated \$330 billion⁵ in the next 4 years, as customers are looking to scale their development automation operations.

The token is remarkably proficient, creating powerful positive feedback loops that can disturb the whole market. It has a series of objectives:

1. To ensure transparency and security for the system's participants
2. To provide a true & powerful utility
3. To develop strong economic incentives
4. To enhance the platform with the network ownership effect
5. To stand as a source of governance

⁵ <https://www.transparencymarketresearch.com/application-development-deployment-software-market.html>



Combine Development Automation with Human Expertise

The DevOps Marketplace is about using automation bots that assist in daily application development & deployment. It's easy to imagine the bots powered by Artificial Intelligence and Machine Learning. However, even considering the most recent advances in both fields, they are no match for human experience, expertise and creativity. This is why we plan to develop a solution for experts & advisors, who will be able receive job orders via dedicated actions in Buddy's pipelines. In this way, Buddy users will be able to gain access to specialists in demand, especially in the Blockchain development world. In return, the experts will be able to build new revenue streams around job orders received via Buddy.

For example: A software house develops smart contracts for their clients. They have several automation pipelines in Buddy for every branch. Once a change is merged into the staging branch, the pipeline assigned is triggered. One of the actions is a Security Audit performed manually by experts - such as Zeppelin or ChainSecurity. A request is sent by the action to a certified partner who reviews the code for security issues and delivers a report on any issues found back to the user via the API.

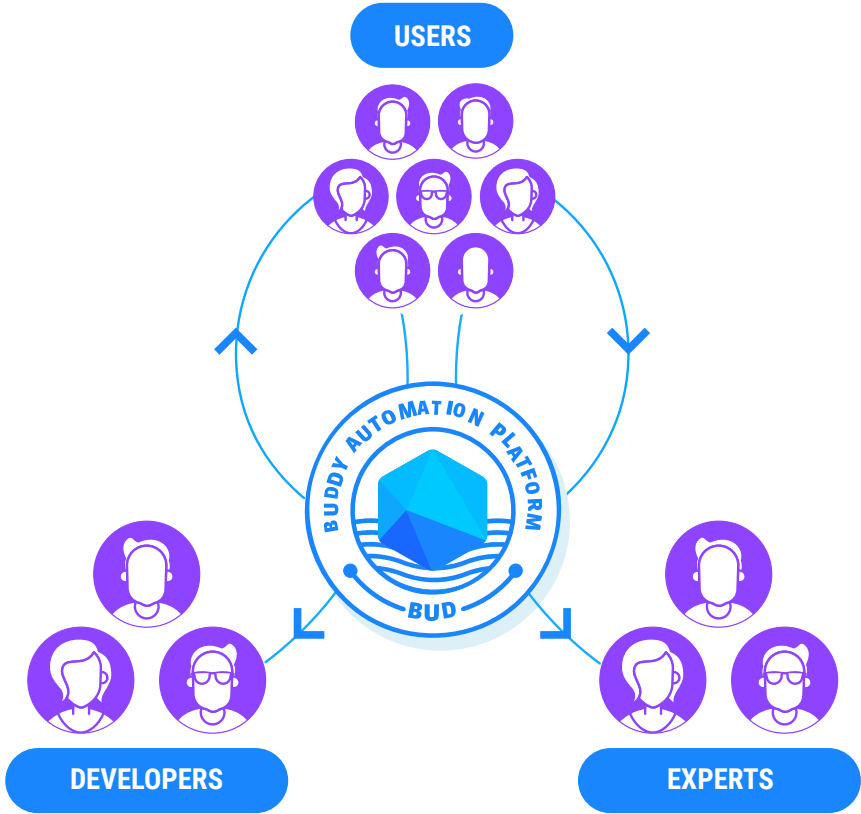
Governance & the Buddy's DAO

Besides going open source, Buddy also embraces a network ownership using Buddy's DAO in which token holders will be able to:

- Curate the DevOps marketplace
- Whitelist nodes participating in the Shared Automation GRID
- Certify 3rd party apps on the DevOps Marketplace
- Remove bad/dishonest actors
- Shape a development roadmap of the platform
- Set bounties for development of features & add-ons



Token Users



TYPE	USE CASE
Developers	Publish development & deployment automation add-ons to the DevOps Marketplace and provide seamless dev environments to the Sandbox Template Universe
Experts	Provide semi-automated services such as manual code audits and certification that can be easily integrated with the Continuous Delivery pipelines of the platform users
Users	Automate and scale operations with development & deployment automation pipelines created with actions from the DevOps Marketplace; reduce development friction with dAppOS environments; scale operations with the Private and Shared Automation GRID and lower their costs by sharing available resources during slack periods with the Shared GRID



Token Utility Summary

ROLE	PURPOSE	FEATURES
Right	Network ownership effects	<ul style="list-style-type: none"> • Access to the Shared Automation GRID, DevOps Marketplace & Sandbox Template Universe • Buddy's DAO Voting: DevOps Marketplace & Sandbox Template Universe curation, delisting dishonest actors in the Shared Automation GRID, Buddy's roadmap planning
Value Exchange	Economy creation	<ul style="list-style-type: none"> • Spending for renting Compute Units for Development automation, BlockchainOps, BaaS & dAppOS run on the Shared Automation GRID • Spending for buying 3rd-party pipeline steps & dAppOS templates from the DevOps Marketplace & Sandbox Template Universe • Earning for publishing plug-ins to the DevOps Marketplace & for publishing dAppOS templates to the Sandbox Template Universe • Earning for sharing Compute Units with the Shared Automation GRID • Earning for providing semi-automated manual expert services via plugins published to the DevOps Marketplace
Toll	Running the infrastructure	<ul style="list-style-type: none"> • Collecting micro fees for running jobs on the Shared Automation GRID, accessing 3rd party add-ons and templates from the DevOps Marketplaces and Sandbox Template Universe
Function	Enriching the user experience	<ul style="list-style-type: none"> • Bootstrapping engagement • Creating positive feedback loops • Drive utility and usage
Token	Frictionless transactions	<ul style="list-style-type: none"> • Efficient payment unit on the platform • Transaction engine • Low barrier exchange unit
Earnings	Distributing benefits	<ul style="list-style-type: none"> • Benefits sharing (Buddy's DAO) • Inflation benefits



Token Sale

Crowdsale Details

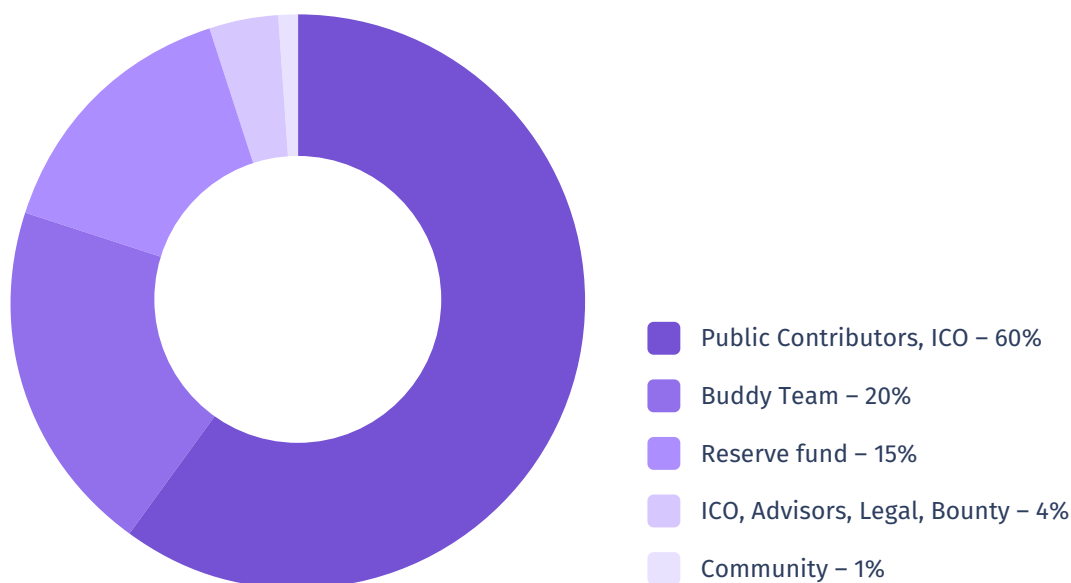
- **Symbol:** BUD
- **Rate:** 1 BUD = 0.0002 ETH
- **Total Sale Supply:** From 300 million to 470 million. The final amount will depend on the bonuses that would be applied in the Crowdsale.
- **Total Supply:** Maximum 670 million BUD tokens will be generated. Minimum 500 million.
- **Hard cap:** upon achieving this cap, token creation will stop and no further contributions will be accepted. The hard cap amount which will be sold in the crowdsale is 60,000 ETH
- **Protocol:** ERC20
- **Emission rate:** No new tokens will ever be created
- **Token Emission Date:** up to 30 days after the tokensale ends

ICO Timeline

START	END	BONUS	DURATION	HARD CAP (BUD)
01-AUG	14-AUG	25%	14 days	62 500 000
15-AUG	29-AUG	20%	14 days	60 000 000
30-AUG	13-SEP	15%	14 days	57 500 000
14-SEP	29-SEP	10%	14 days	55 000 000
30-SEP	14-OCT	5%	14 days	52 500 000
15-OCT	29-OCT	0%	14 days	50 000 000



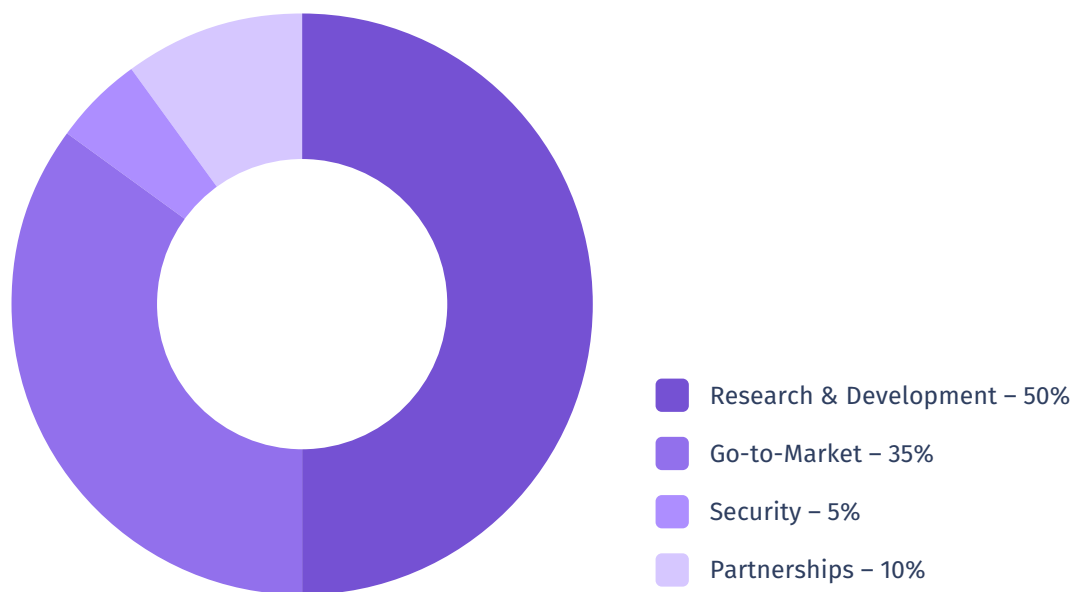
Token Allocation



DISTRIBUTION	AMOUNT	TERMS
ICO	60% of BUD created during the ICO is allocated to the contributors who bought the token via our booking platform	Locked for 3 months > 100k USD Not locked < 100k USD
Team	20% of BUD is allocated to the Buddy Team so the ICO token holders can be sure that their interest is in alignment with the Team	Locked with 1 year vesting period
Reserve Fund	15% of BUD is reserved for new contributors, partnerships & community initiatives, or burned if not necessary. Ensures long-term sustainability of BUD.	Locked for 1 year
Advisors, Legal, Bounty	4%	1 year vesting
Community	To ensure that Buddy kick starts with a large user base 5 000 000 BUD will be shared with the community.	Locked for 3 months, 1 year vesting



Use of Funds



Funds raised during the Buddy ICO will be used for the development of a Decentralized Application Development and Deployment Platform that features a Private and Shared Automation GRID, the DevOps Marketplace, making Buddy open-source, and technologies for Blockchain application development: dAppOS, distributed Blockchain-as-a-Service and BlockchainOps.

As a successful SaaS business we also know, however, that having a great product is not enough. To ensure market success & high token demand, the ICO will fund an execution of its go-to-market strategy.

Furthermore, we want to be the go-to place for learning Blockchain development skills for current and soon-to-be programmers, supported by free access to the Buddy platform (students & teachers).



Roadmap



- Q3 2016** • Launch of Buddy Beta
- Q4 2016** • End of the Beta, First Paying Customers
- Q4 2016** • Launch of Buddy Enterprise
- Q1 2017** • Further development of Buddy, weekly releases of new features
- Q4 2017** • Proof-of-concept of BlockchainOps using Buddy automation pipelines
- Q3 2018** • Tokensale
- Q4 2018** • BlockchainOps
- Q1 2019** • Private Automation GRID
- Q1 2019** • The DevOps Marketplace
- Q2 2019** • Distributed Blockchain-as-a-Service
- Q2 2019** • Experts Services on the DevOps Marketplace
- Q3 2019** • DAppOS & Sandbox Template Universe
- Q4 2019** • Shared Automation GRID



The Team



Simon Szczepankowski

CEO, Product Manager & Co-Founder

SaaS entrepreneur with over 15 years experience in IT. Previously bootstrapped springloops.com, a Subversion hosting service for web developers that attracted > 5000 paying customers from 120 countries. Managed IT projects for the Dutch Air Force, KLM, Mercedes Benz NL, Ford NL and Merck PL divisions. One of the few Google AdSense Premium partners in Poland. Author of the youngest Polish IT book debut (Windows XP Optimization, 2003).



Raphael Sztwiorok

CTO, Project Manager & Co-Founder

Managed large GIS & Big Data projects for the Polish Army & Norwegian Defence Procurement Division via Techmex SA. Participated in the design and development of large mapping and geo services used by NATO for COWI (Danish Consulting Group). Acted as Senior IT manager in the Multinational Geospatial Co-production Program. Senior Scrum Master, Docker & microservices expert. Hybrid cloud specialist & DevOps consultant to Buddy's Enterprise customers.





Thomas Korwin-Gajkowski

Blockchain Solution Architect

Blockchain Team Lead at KODAKOne. Distributed Ledger/Blockchain/Cryptocurrency Software Advisor, Organizer and speaker at workshops related to Blockchain/Smart Contract programming and Cryptomarkets for Polish, German and Swiss financial institutions.



Martin Kudla

Software Architect & Co-Founder

20+ years experience in IT. Architect of flight and hotel booking platform for weg.de & price comparison engine for idealo.de, the 46th largest German website. Release management & data migration expert.



Michael Hankus

Senior Software Engineer & Co-Founder

15+ years experience in IT. Back-end co-creator for Polish Satellite Center of Regional Operations - at the time the only satellite operation center in CEE. Creator of ArcGis & GeoMedia-based tools for the Polish government. Node.js, Docker & Virtualization expert.





Thomas Prus

Senior Software Engineer

20+ years experience in IT. Lead developer of one of the largest German car websites and the largest online mother community in Germany (netmums.de). Java & Spring expert.



Alexander Kus

Chief Growth Officer

Attracted 2000+ paying customers via outbound channels for springloops.com – a Subversion Hosting Platform for web developers – and BamBam! – the project management software for experts. Community Manager and caretaker of the 10% month-to-month growth of Buddy CI/CD.



Paul Olek

Head of UX/UI & Co-Founder

15+ design experience. Managed UX design for the European franchises of YellowPages and Roche-sponsored projects. Years of experience as a hired gun by US-based startups such as Swingvy and Allocate.ai. Panelist at UX/UI events. [Check out his amazing portfolio on Dribbble.](#)





Octavia Nowakowska

Head of Customer Support

Manages the day-to-day customer support operations in Poland and USA time zones for Buddy customers from 70+ countries.



Paul Kapala

Senior Full Stack Web Developer

Buddy's Node.js whisperer on-duty. Has a thing for cloud management operations. JavaScript is strong with this one. Loves doing things on the Go.



Darek Sztwiorok

Java Developer

Apprentice of Martin & Tom – his Java masters – looking forward to replacing them when the time is right (“there can only be one”). Created a deployment module for releasing web projects from Subversion repositories to web servers for springloops.com used by thousands of users worldwide.



Lucas Czulak

Data Analyst

Reads between the green lines of the digital rain of data. Looks up new opportunities on the Web and puts out fires before they grow in scale. A quiet mind with an interminable vision.





Chris Stryczek

Head of Test Engineering

Manages Buddy's fleet of test & staging environments. Responsible for running 10k automated tests challenging new additions to Buddy while maintaining the speed and high-availability of the service.



Michael Bigos

Test Engineer and Technical Support Specialist

Continuously amazed with use cases reported by Buddy customers. Reproduces tens of inquiries to answer questions and solve issues on a day-to-day basis.



Patrick Trojanowski

Customer Support Specialist

Our tour guide to the "Aha!" moment of the ultimate Continuous Delivery workflow. An incurable optimist, tirelessly responding to the constant flow of user inquiries.



Bart Piela

Front-end Developer

JavaScript and HTML/CSS Ninja. A Young Gun with Deep Knowledge of 2018's Trends and an Insatiable Appetite for Learning New Things. Responsible for Website and Application Front-End Witchcraft.



Legal Disclaimer

Please, carefully read the information contained in this Whitepaper and pay special attention to the “Terms of Use and Risk Factors” section. If you have any doubts as to what actions you should take, we recommend consulting your financial, legal, tax or other professional advisor(s).

This Whitepaper is intended for informational purposes only and does not imply any elements of a contractual or legally binding relationship. The primary purpose of the Whitepaper is to present our company's project and to provide important information to potential holders of BUD tokens to facilitate the decision-making process regarding further association with Buddy and the BUD tokens offering with the aim of their possible acquisition. Despite the efforts we make to ensure accuracy and relevance of the information provided in this document, this information is not professional advice and cannot be interpreted as providing such advice. We do not guarantee, and do not accept any kind of legal responsibility arising from, or related to the accuracy, reliability, relevance or completeness of any information contained in this document. Potential holders of BUD tokens shall contact independent professional advisers before relying on the information provided therein, to make any deals, enter into obligations or conduct transactions based on the information contained in this Whitepaper, since all information is published for informational purposes only.

A BUD token is not a security, digital currency, commodity or other financial instrument incorporated within any jurisdiction, including a jurisdiction where potential token holders reside. This document is not a prospectus or a quotation, it does not serve as a securities offer or a request for investments in the form of securities within any jurisdiction. We do not provide any opinion or advice regarding the acquisition, sale or other transactions with BUD tokens, and the fact that we are

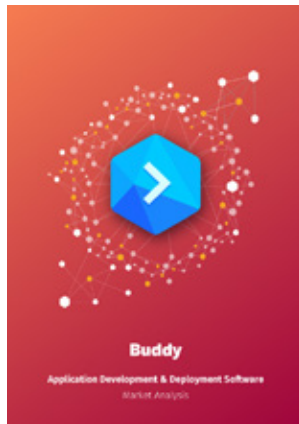


providing this Whitepaper shall not be used as the basis or shall not be relied upon in matters related to entering into agreements or making investment decisions. The Whitepaper does not oblige anyone to enter into any contracts, take legal obligations in regard to the sale or purchase of BUD tokens, nor accept any cryptocurrency or any other form of payment.

You are not entitled and shall not buy BUD tokens if you are a citizen or resident (whether for tax or any other purposes) of any country or territory where operations with digital tokens and/or digital currencies are prohibited or somehow restricted by the applicable legislation. A “person” is typically defined as an individual who has residence in the states/territories concerned, or as a legal entity organized or incorporated according to the law of these states/territories. Token holders are not allowed to offer tokens for sale or distribute tokens as well as resell, transfer or convey them in any way to the above-mentioned persons. The text of this Whitepaper in the English language takes precedence as the main official source of information about Buddy services and BUD tokens. Translation of the Whitepaper into other languages is provided for informational purposes only.

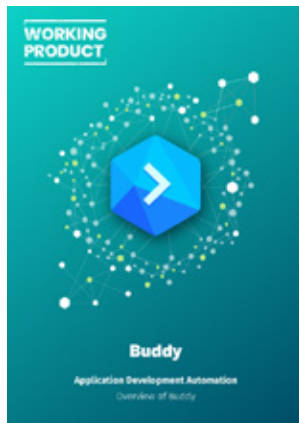


Recommended reading



Market Analysis

A dive into Application Development & Deployment Software, the rapidly growing market valued to become \$345 billion by 2022



About Working Product

Why Buddy is a winning development automation platform that serves over 7,000 developers every day across 120+ countries. Featured customers: INC. Magazine, CGI.com, ING Bank.

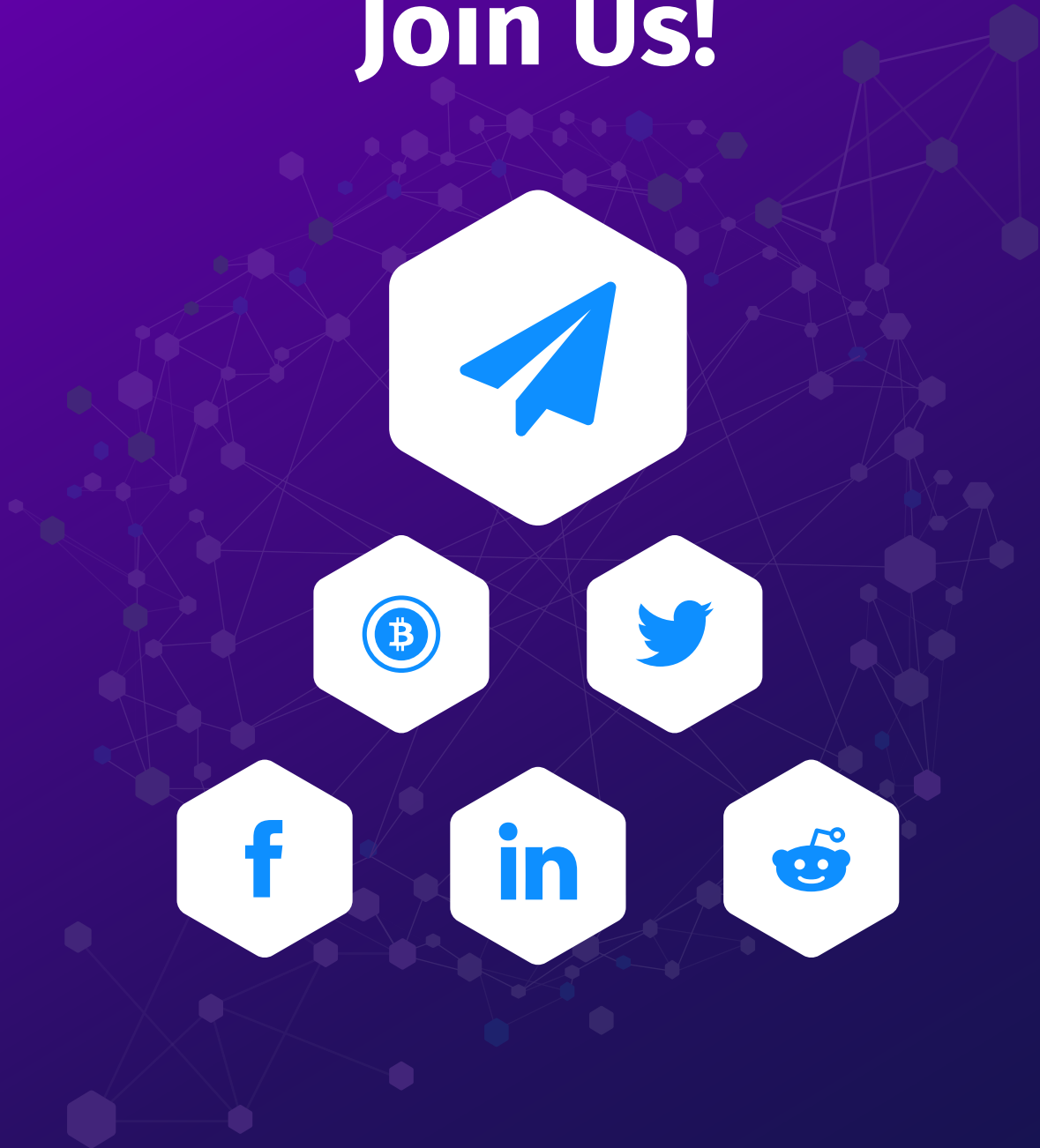


Token Sale

For a detailed overview of our Roadmap, Timeline and more, read our Token Sale details



Join Us!



Contact us



buddy.works



token@buddy.works

Token Sale

Thank you!