GitHub Concepts & Information Architecture (I.A.)

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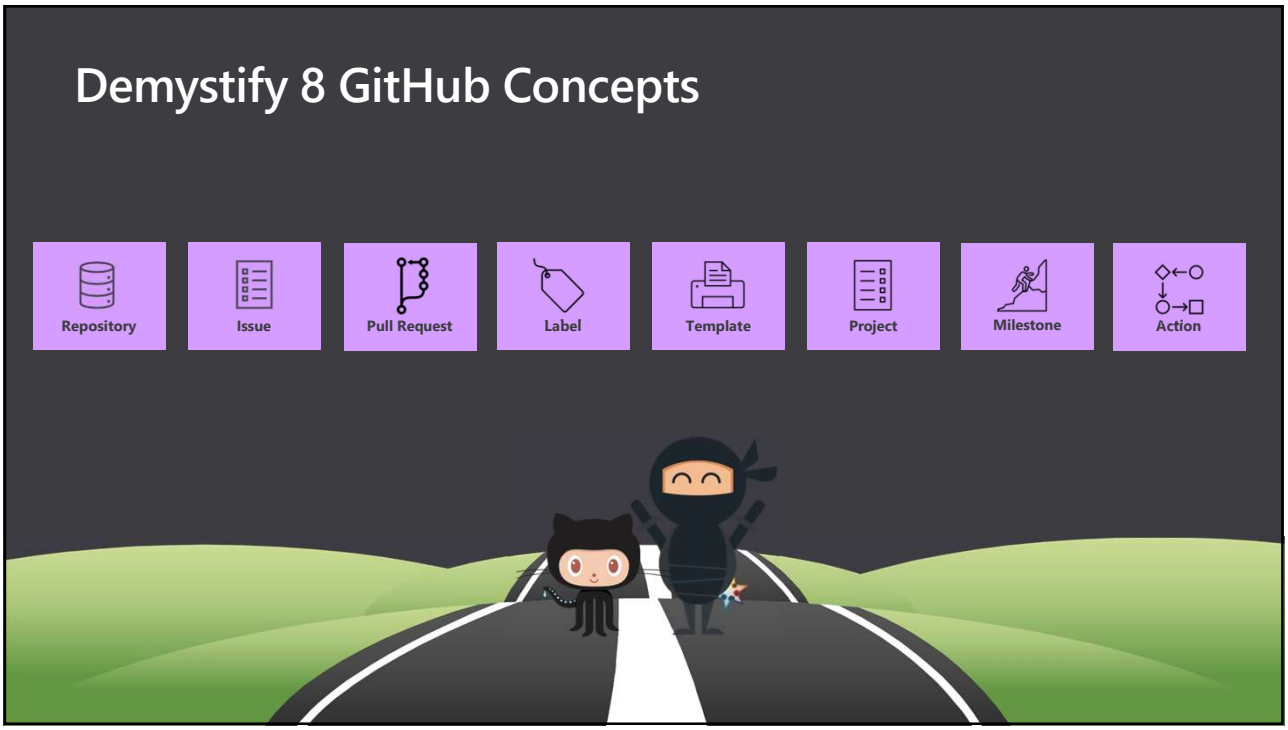
Demystify 8 GitHub Concepts



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GitHub Concepts

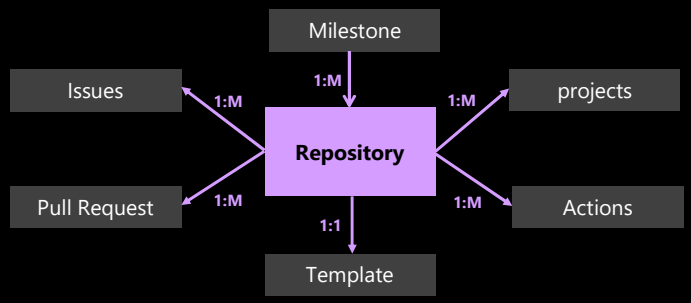
- **Repository**
- Issues
- Pull Request
- Label
- Template
- Project
- Milestone
- Action

What is Repository

A repository is similar to a folder and a GitHub repository becomes **a folder that is available online** on the cloud for the people to download, access, and contribute. This folder contains the code files of the project which can now be used by other people.

GitHub was introduced to share the repository with other people who are interested in something that the user is doing or **contribute to the repository** on which the user himself is interested. **GitHub repository helps to connect people**. A GitHub repository plays a vital role among the developers to develop something easy and make it available to the whole world.

You can customize access to each repository in your organization with granular permission levels. The levels are **read, triage, write, maintain and admin**.



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GitHub Concepts

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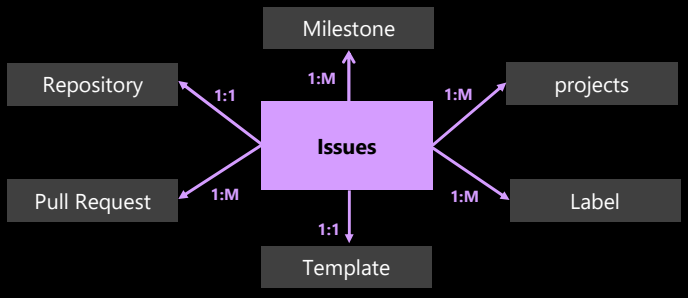
What is Issue

Issues are a great way to keep track of tasks, enhancements, and bugs for your projects. They're kind of like email—except they can be shared and discussed with the rest of your team. Most software projects have a bug tracker of some kind. **GitHub's tracker is called issues**.

Issue has its own section in every repository. GitHub's issue tracking is special because of our focus on collaboration, references, and excellent text formatting.

Once you've collected a lot of issues, you may find it hard to find the ones you care about. **Milestones, labels, and assignees** are great features to filter and categorize issues.



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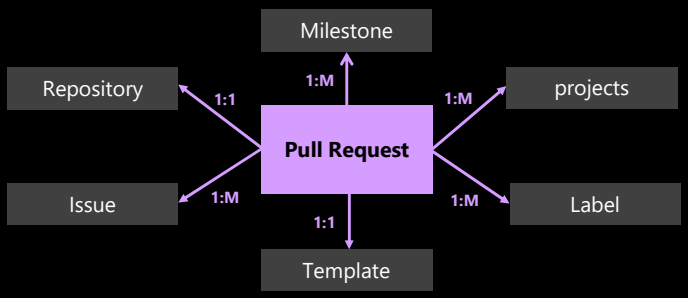
What is Pull Request

Contributions to a source code repository that uses a distributed version control system such as git are commonly made by means of a pull request, also known as a **merge request**. The contributor requests that the **project maintainer** pull the source code change, hence the name "pull request".

Pull requests let you tell others about changes you've pushed to a branch in a repository on GitHub. Once a pull request is opened, you can discuss and review the potential changes with collaborators and add follow-up commits before your changes are merged into the base branch.



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What is Label

You can manage your work on GitHub by creating labels to **categorize issues, pull requests, and discussions**. You can apply labels in the repository the label was created in. Once a label exists, you can use the label on any issue, pull request, or discussion within that repository.

Anyone with read access to a repository can view and search the repository's labels. Anyone with triage access to a repository can apply/dismiss existing labels. To create, edit, apply, or delete a label, you must have write access to the repository.

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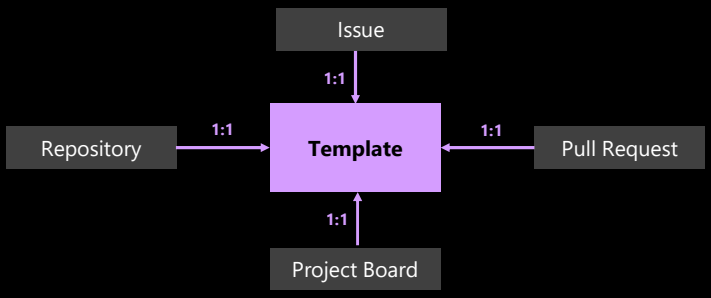
What is Template

1) **Repository Template**: you can generate a new repository with the same directory structure and files as an existing repository.
2) **Issue Template**: You can customize the templates that are available for contributors to use when they open new issues in your repository.
3) **Pull Request Template**: When you add a pull request template to your repository, project contributors will automatically see the template's contents in the pull request body.
4) **Project board templates**: There are a list of templates available for selection: None, Basic Kanban, Automated Kanban, Automated Kanban with review, Bug triage.



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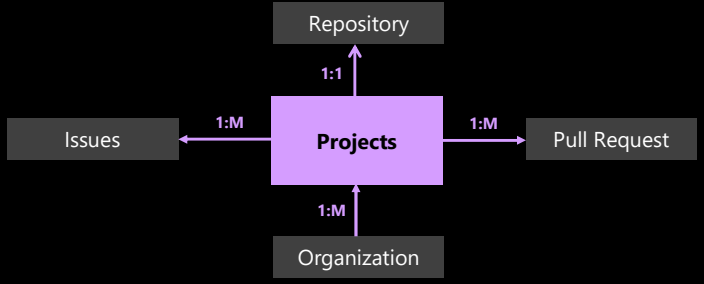
What is Project (Board)

Project boards on GitHub help you organize and prioritize your work. You can create project boards for specific feature work, comprehensive roadmaps, or even release checklists. With project boards, you have the flexibility to create customized workflows that suit your needs.

Types of project boards: **User-owned project boards** can contain issues and pull requests from any personal repository. **Organization-wide project boards** can contain issues and pull requests from any repository that belongs to an organization. **Repository project boards** are scoped to issues and pull requests within a single repository. They can also include notes that reference issues and pull requests in other repositories.



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GitHub Concepts

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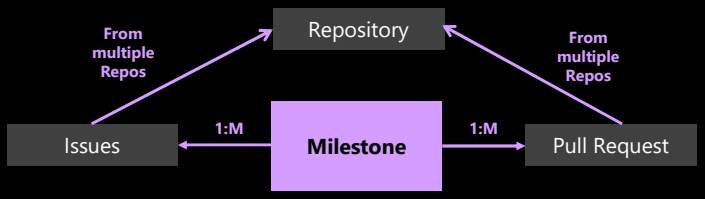
What is Milestone

You can use milestones to track progress on groups of issues or pull requests in a repository.

Milestones are kind of labels that mark, and group works that are expected to be delivered at some point in time. The Milestones page which you can access from Issues page makes it clear - you can see the percentage of tickets completed for a particular milestone and the due date. You can also sort milestones by due date and prioritize works within a particular milestone.

The stress here is on **delivery dates and tracking progress**.



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GitHub Concepts

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- **Action**

What is Action

GitHub Actions helps you **automate your software development workflows** from within GitHub. You can deploy workflows in the same place where you store code and collaborate on pull requests and issues.

Each workflow is made up of individual actions that run after a specific event (like a pull request) occur. The individual actions are packaged scripts that automate software development tasks.

With GitHub Actions for Azure, you can create workflows that you can set up in your repository to build, test, package, release, and deploy to Azure. GitHub Actions for Azure supports Azure services, including Azure App Service, Azure Functions, and Azure Key Vault.

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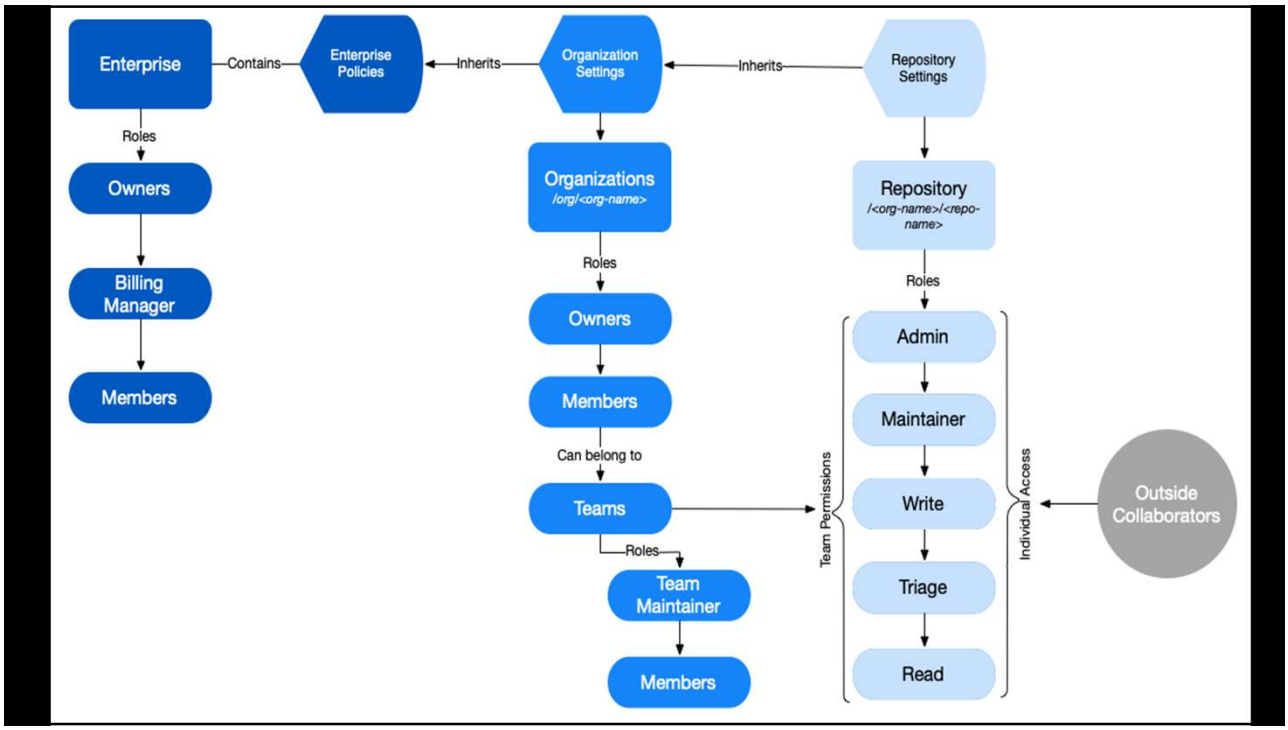
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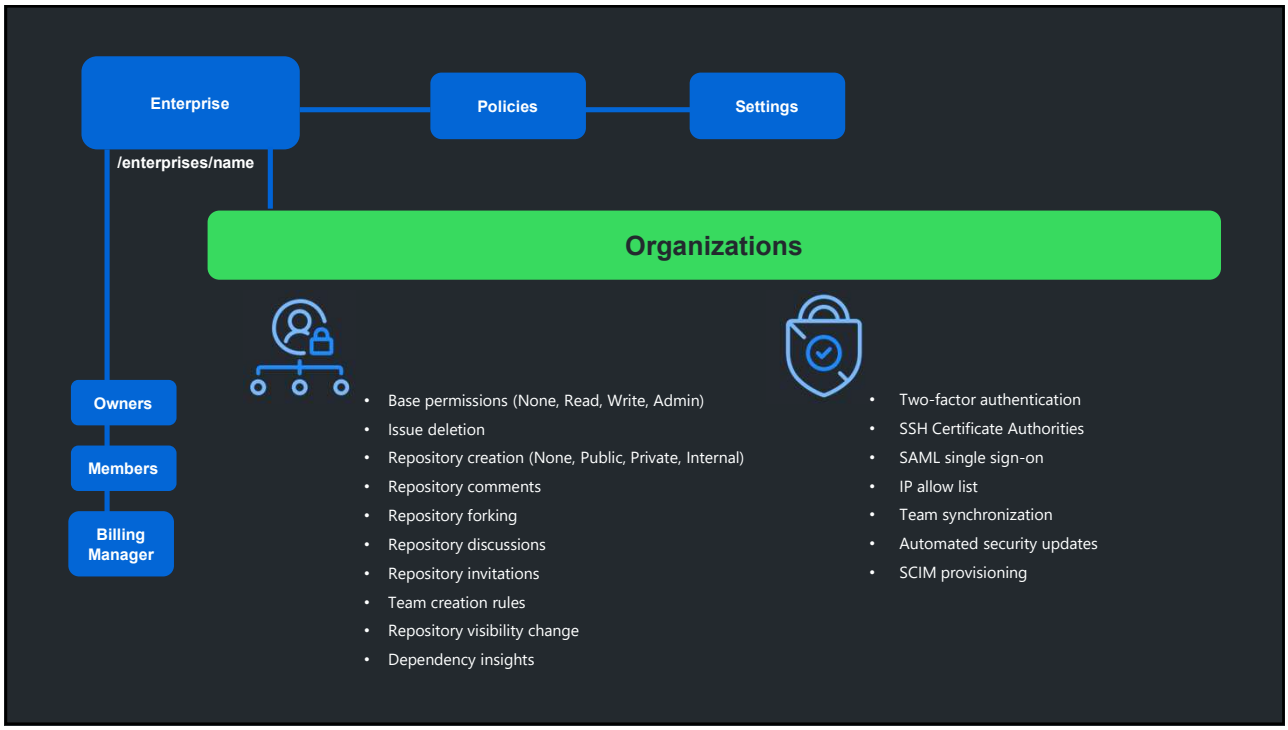
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Base permissions (None, Read, Write, Admin)
Issue deletion
Repository creation (None, Public, Private, Internal)
Repository comments
Repository forking
Repository discussions
Repository invitations
Team creation rules
Repository visibility change
Dependency insights
Two-factor authentication
SSH Certificate Authorities
SAML single sign-on
IP allow list
Team synchronization
Automated security updates
SCIM provisioning

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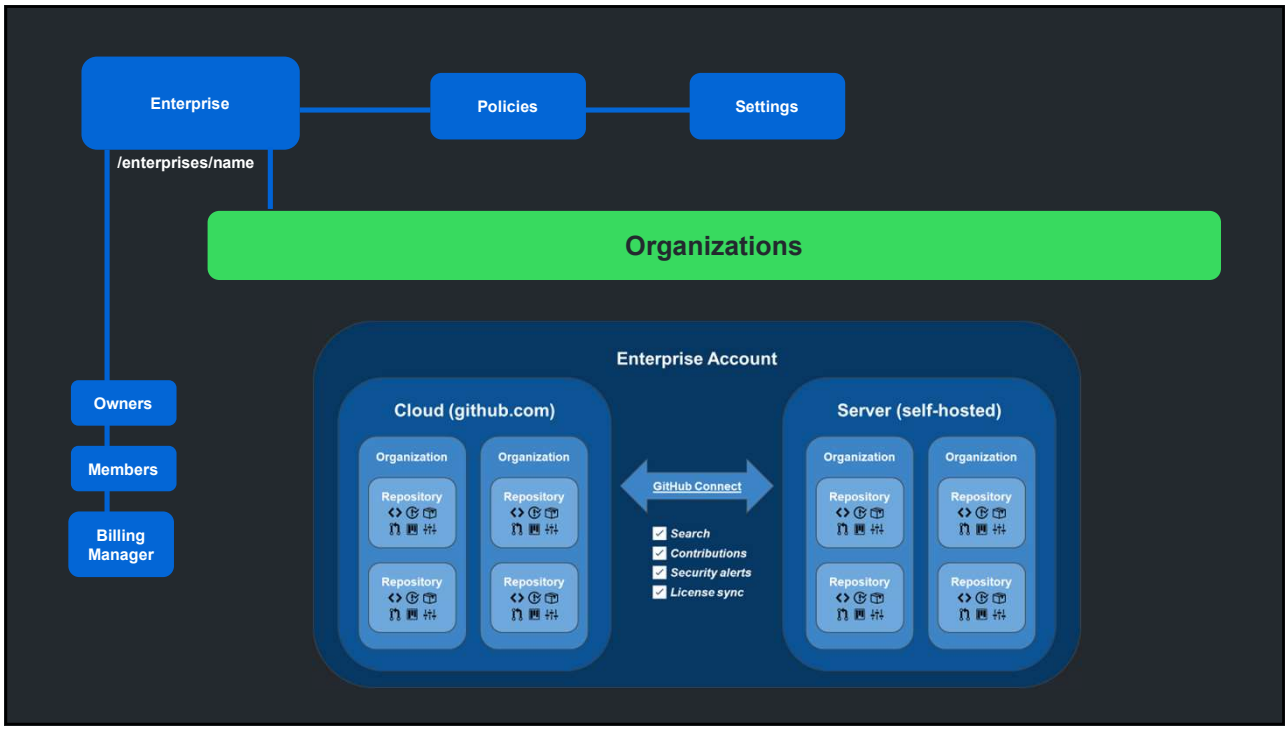
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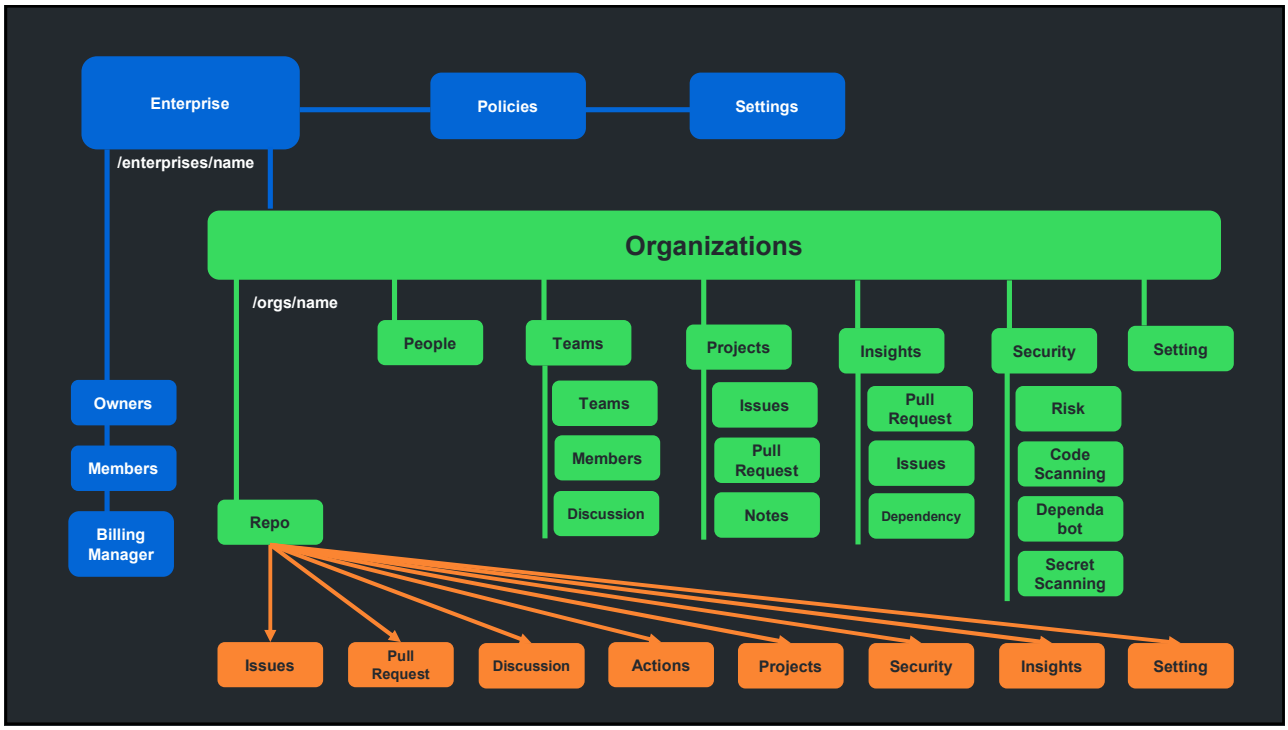
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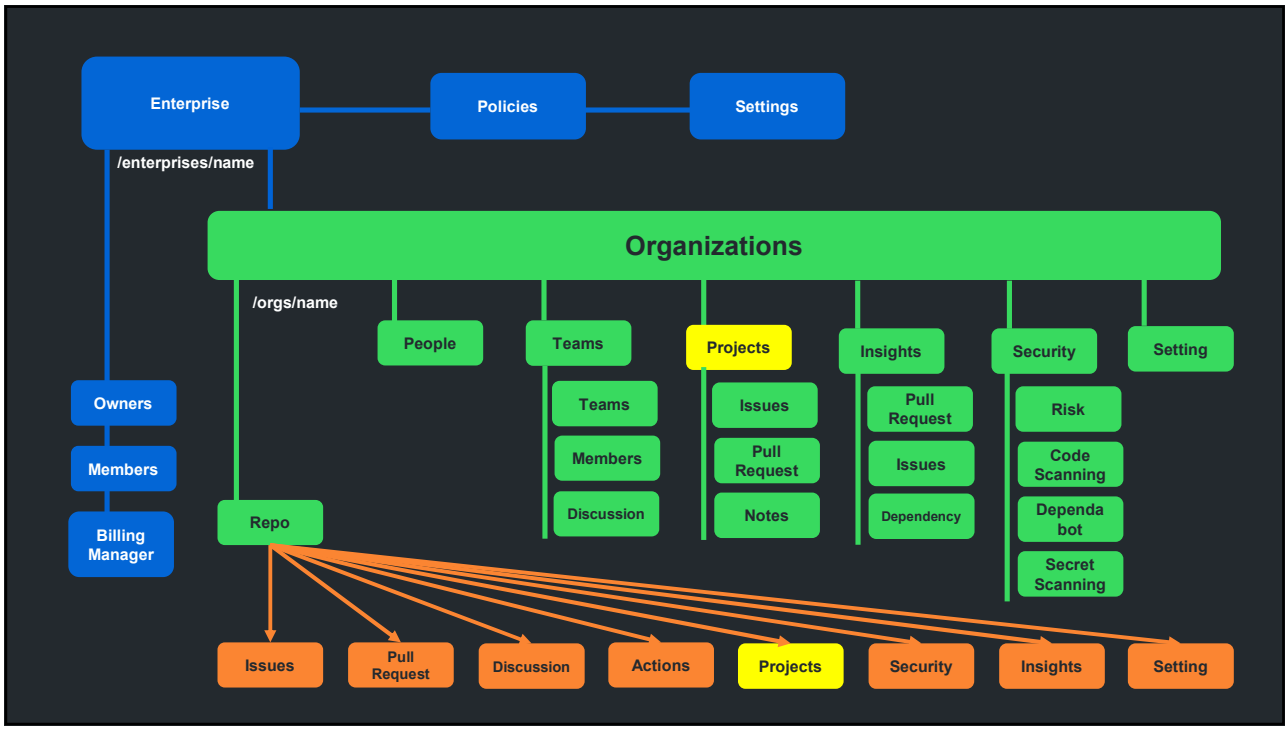
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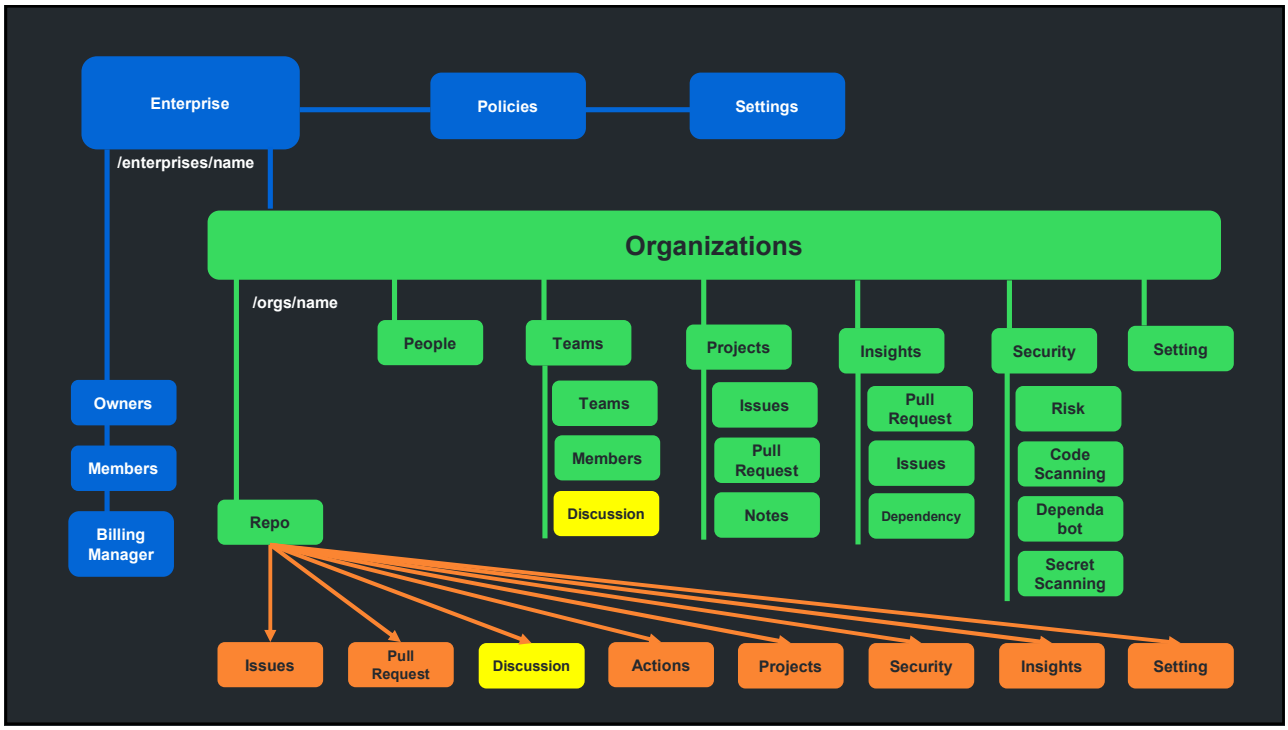
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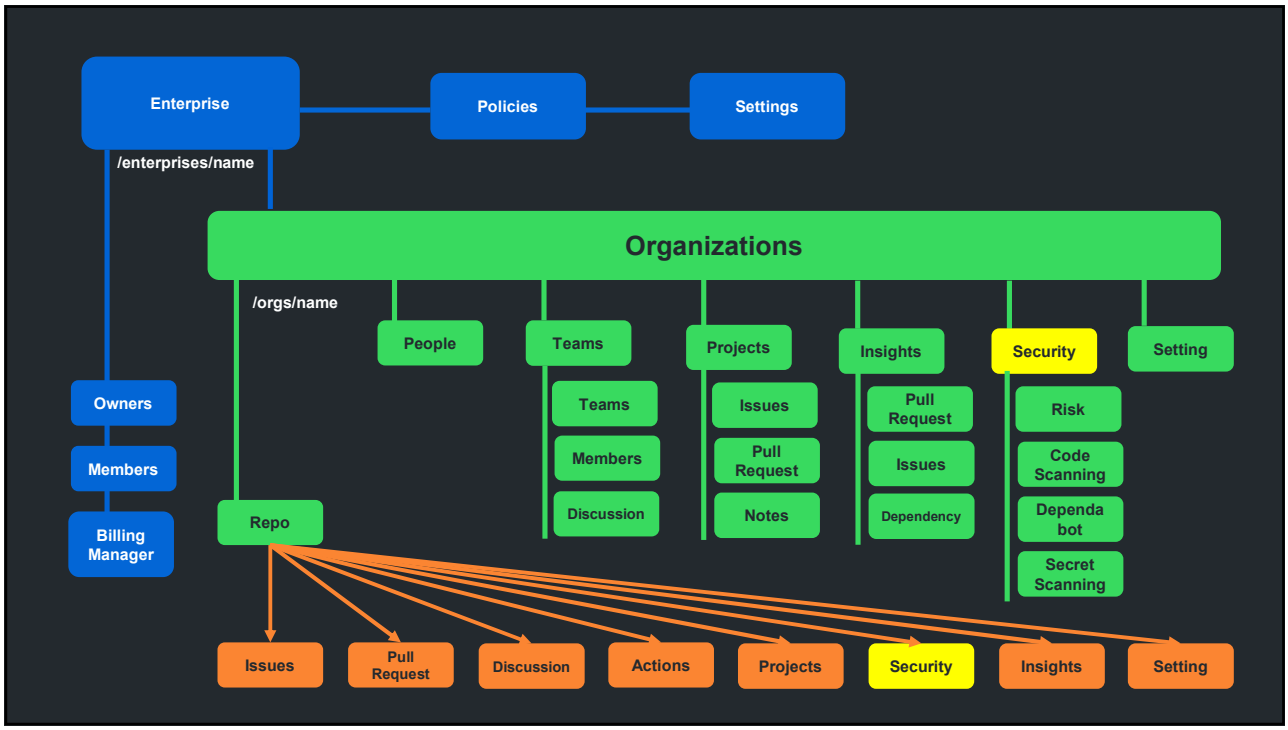
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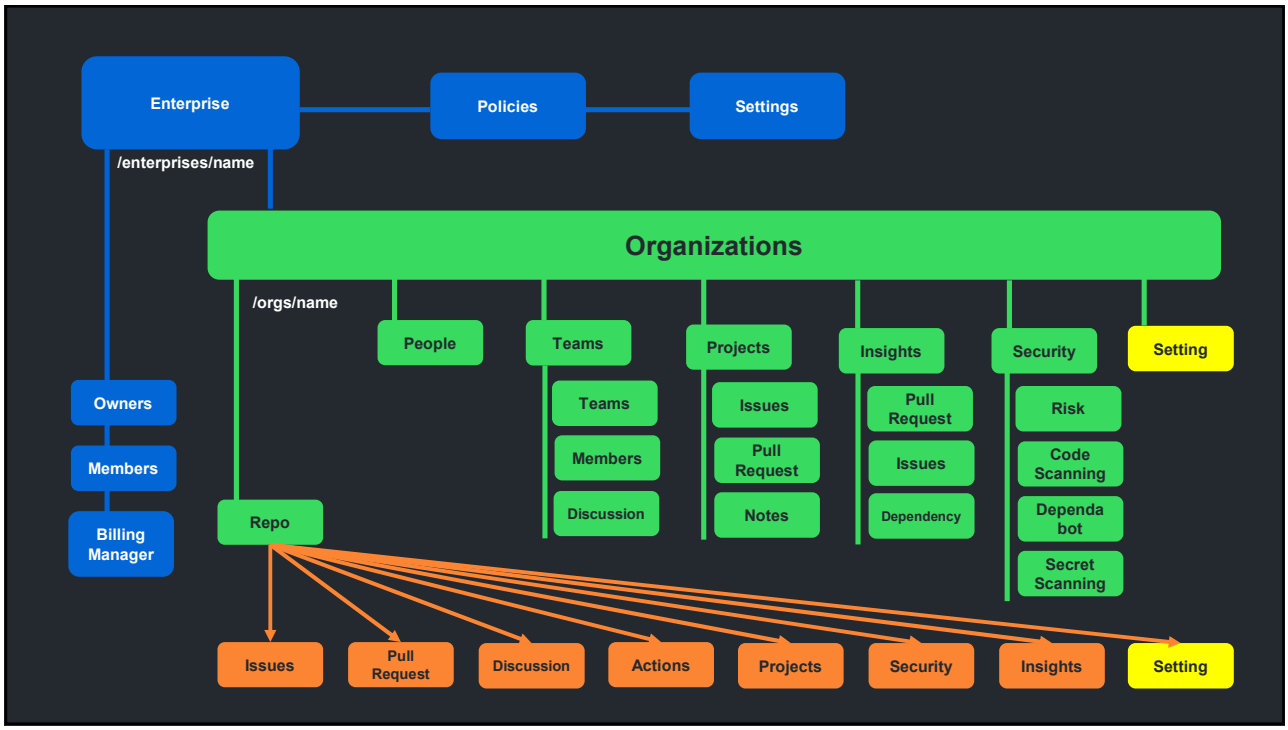
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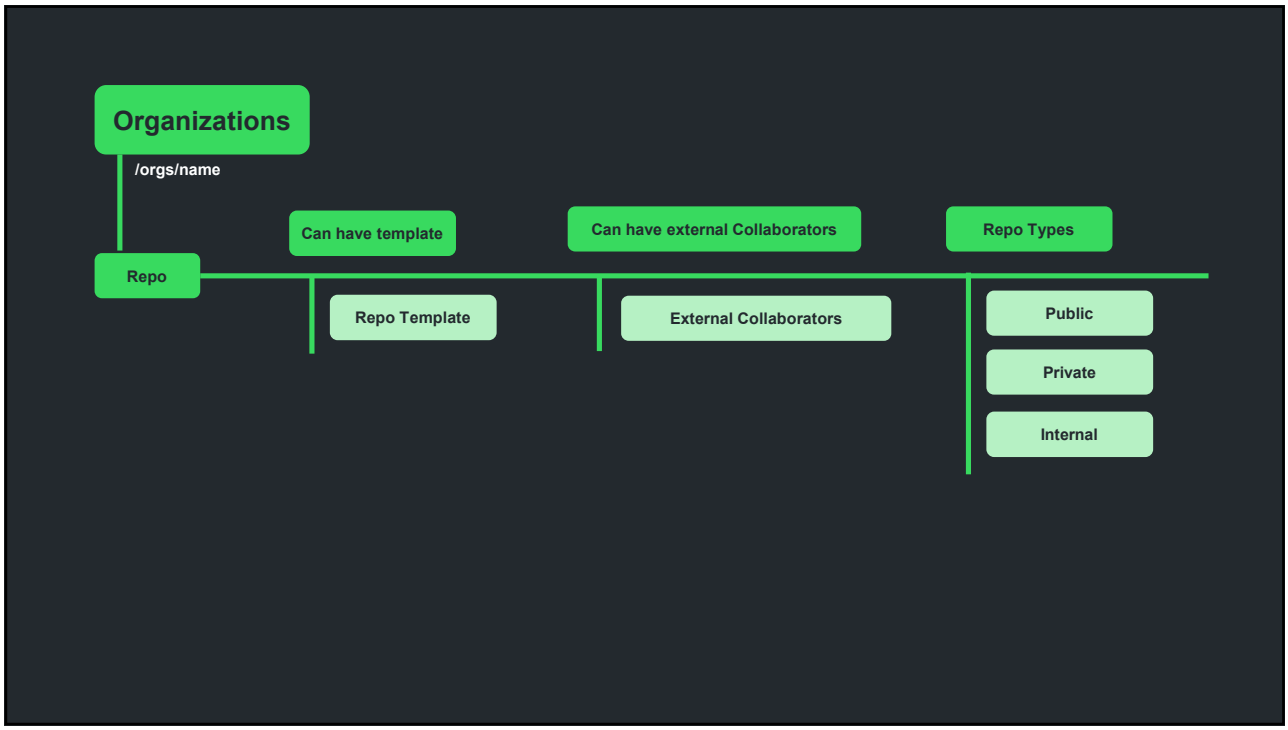
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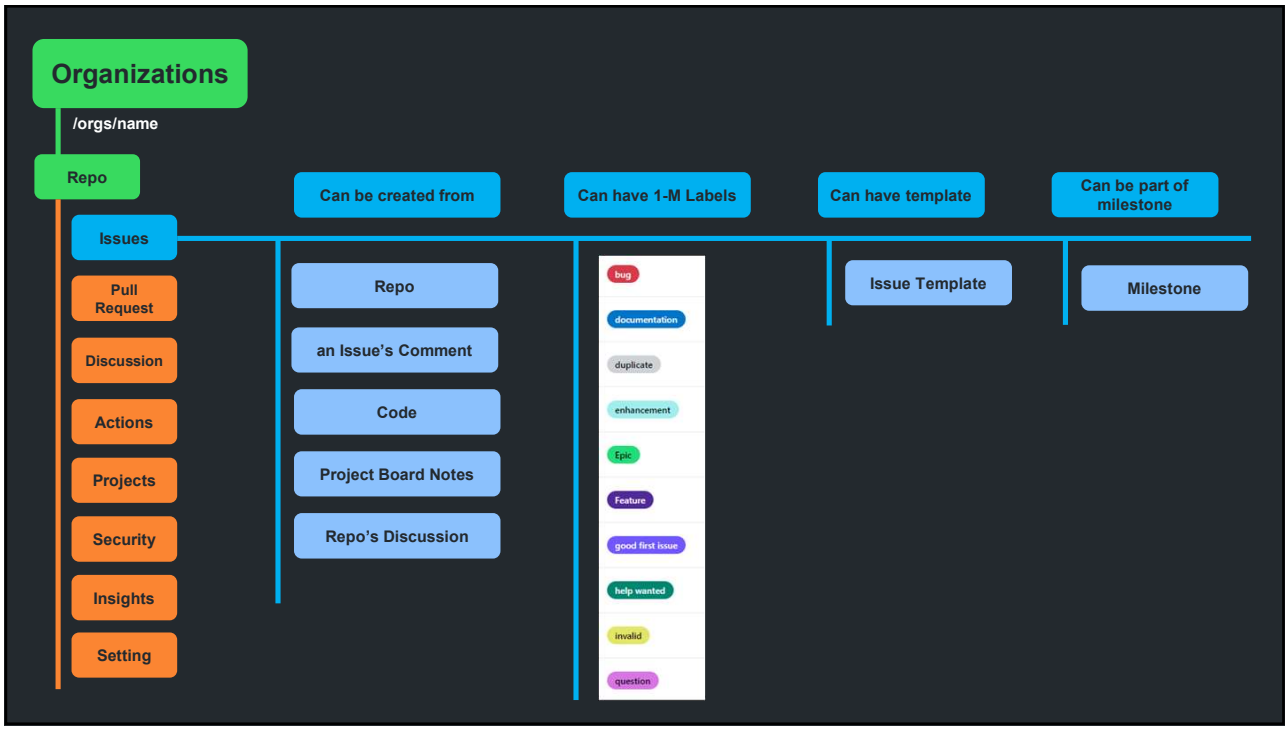
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enhancement
Epic
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help wanted
invalid
question
Can have template
Issue Template
Can be part of milestone
Milestone

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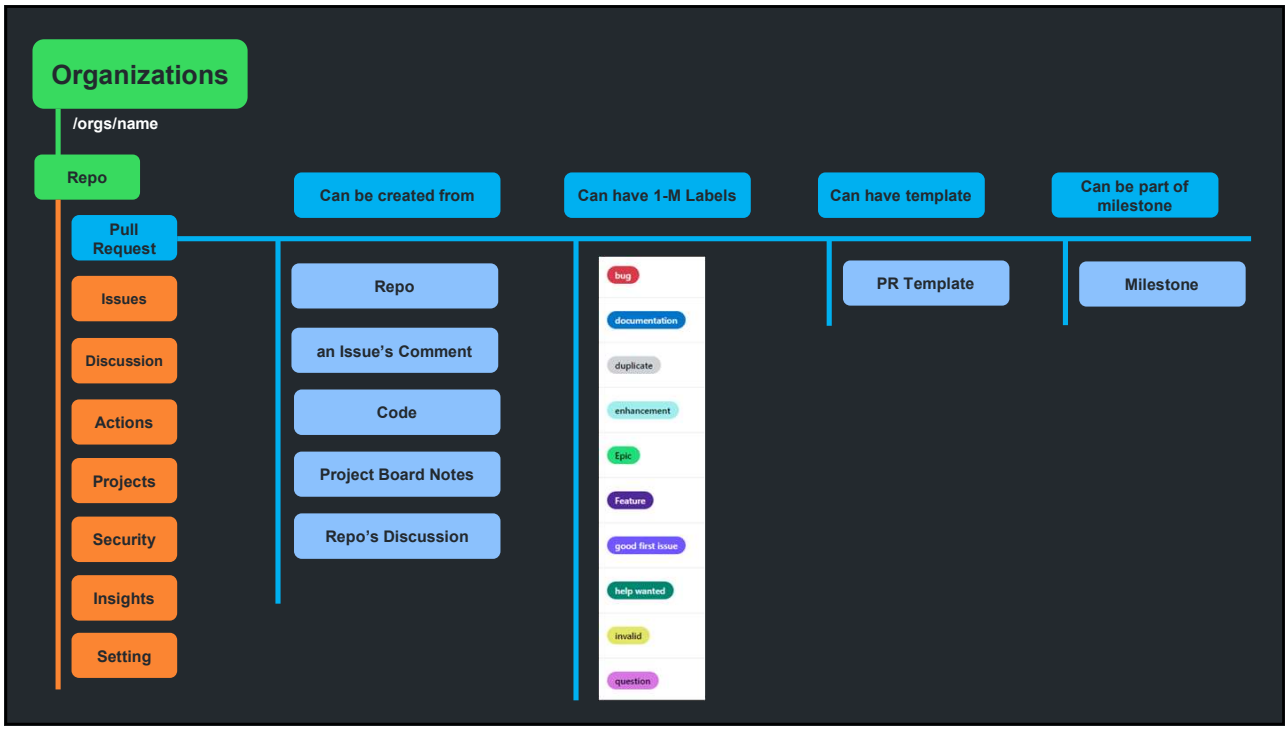
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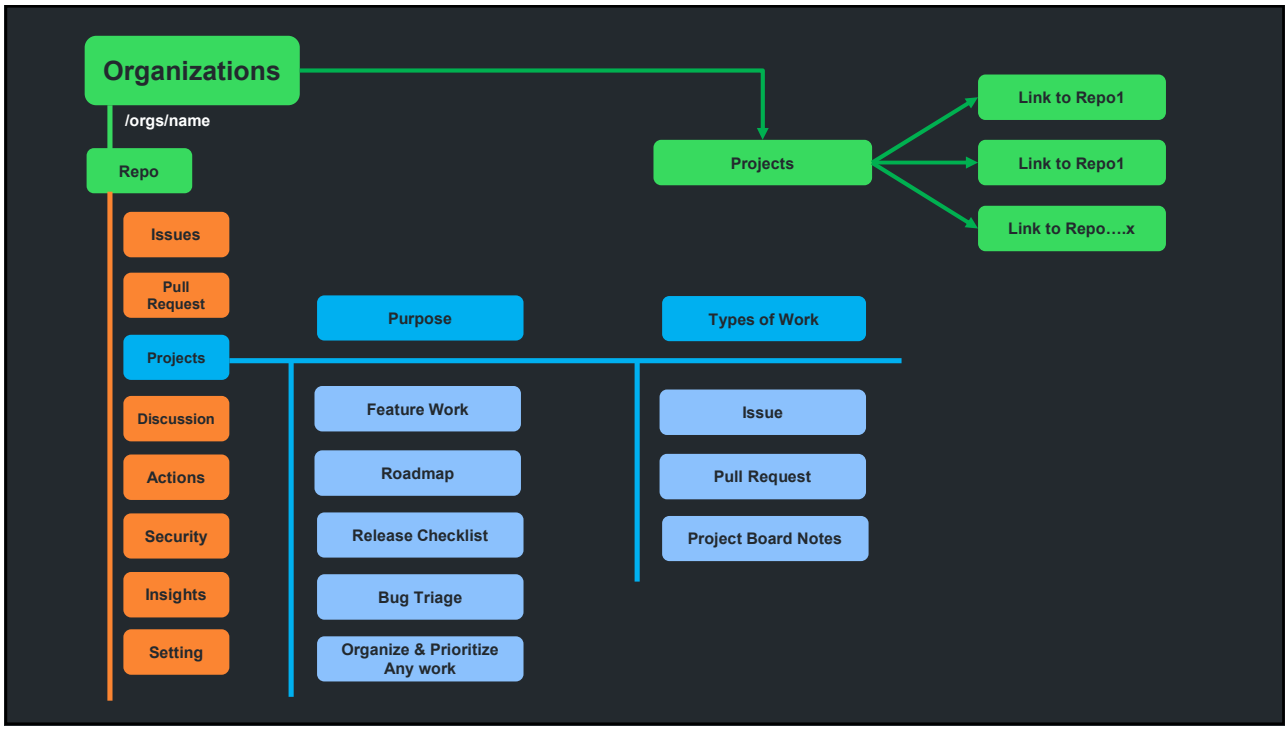
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Purpose
Feature Work
Roadmap
Release Checklist
Bug Triage
Organize & Prioritize Any work
Types of Work
Issue
Pull Request
Project Board Notes

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