

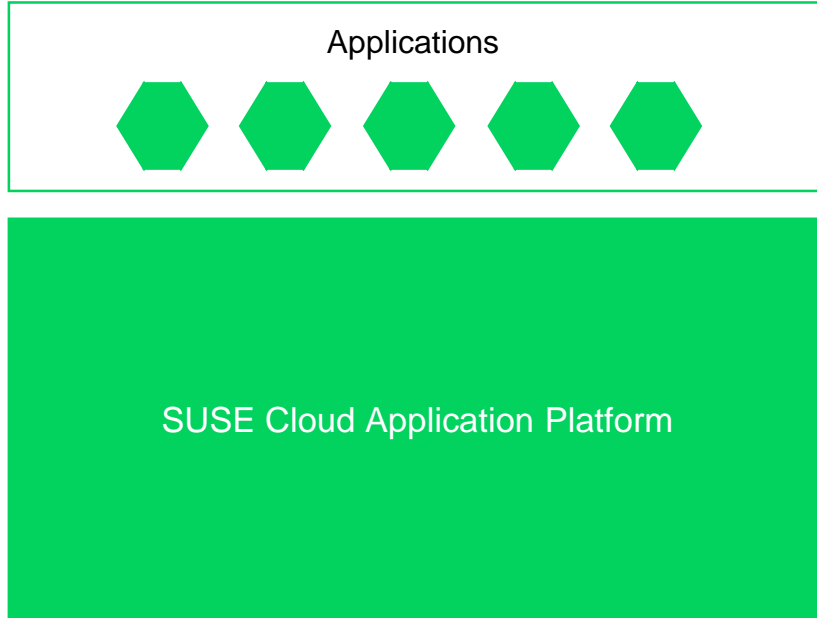
susecondigital ²⁰

An introduction to Stratos: The hybrid cloud management solution

[TUT1407]

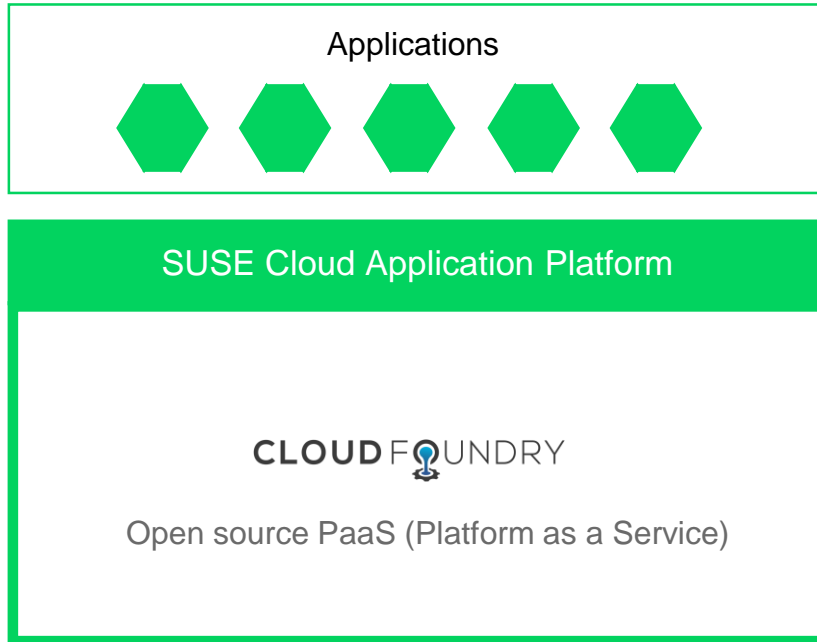
Louis Paul
SUSE Cloud Solutions Architect
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SUSE Cloud Application Platform



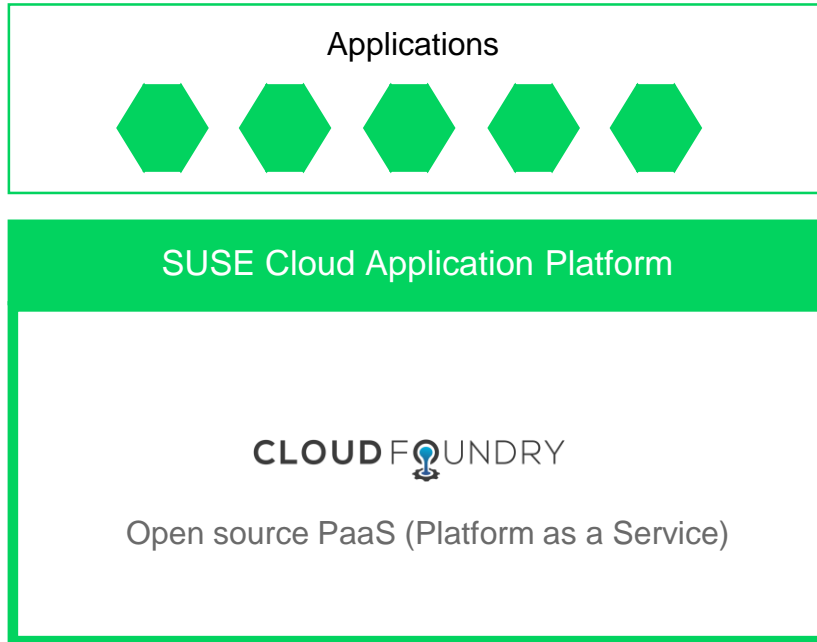
- SUSE Cloud Application Platform helps accelerate innovation by getting applications to market faster.
- Developers can get apps to the cloud in minutes instead of weeks
- Let's developers focus on code not on how to deploy and scale applications

SUSE Cloud Application Platform: Cloud Foundry



- Is a code-centric platform that helps reduce application development cycles from months (or years) to days or weeks
- Is the prevailing open-source cloud application platform
- Used by half of the Fortune 500 and a third of the Global 2000
- Makes it faster and easier to build, test, deploy and scale applications

SUSE Cloud Application Platform: Management



- Good tools are critical for developers and operators
- What tools are available to developers and operators to simply their tasks and enable them to get things done more quickly?
- Is this toolset sufficient?
- Is there an opportunity to help developers and operators?

Cloud Foundry CLI



Developer



Administrator

CF CLI

SUSE Cloud Application Platform

CLOUDFOUNDRY

The Cloud Foundry CLI was the only standard open-source tool available

Pros:

- CLI great for automation and scripting
- Tracks CF feature set

Cons:

- Requires client installation
- Not designed for browsing
- Slow to switch between orgs/spaces
- Slow to switch between Cloud Foundry clusters (one CF at a time)
- Hard to get insights (am I over quota?)
- No aggregated views

Stratos: Web-based Management Application



Developer



Administrator



SUSE STRATOS CONSOLE

SUSE Cloud Application Platform

CLOUDFOUNDRY

There was no standard Web-based Management Application, so we created Stratos

Stratos provides an easy-to-use web-based application that allows developers and administrators to manage their applications and Cloud Foundry deployment(s).

Stratos: Web-based Management Application



Developer



Administrator



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CLOUDFOUNDRY

- Created by SUSE
- Open sourced in June'17, accepted as Cloud Foundry incubator project Dec'17
- Graduated from incubation in 2019
- Is the de-facto UI for Cloud Foundry
- Extended to manage multi-cloud Kubernetes clusters
- Extended to deploy Kubernetes workloads via Helm chart repositories
- Extended to include Kubernetes dashboard and visualize Clusters/nodes/ workload metrics,
- Extended to include application auto-scaling and more...

Stratos: Administrator Role



Developer



Administrator



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CLOUDFOUNDRY

- Register CF endpoints in Stratos
- View and manage CF Orgs and Spaces
- Manage Org/Spaces quotas & app limits
- View Audit Event logs
- Register OSB Services
- Browse and search Service Catalog
- View, create and bind Services
- Register Kubernetes clusters endpoints
- Install Kubernetes dashboard
- Register Helm repositories
- Configure and Install Helm charts
- View cluster and node metrics
- View Kubernetes and Cloud Foundry metadata
- and more...

Stratos: Developer Role



Developer



Administrator



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CLOUDFOUNDRY

- View applications
- View, scale and manage applications
- Deploy a CF or Docker application
- SSH to application instances
- Stream application logs
- Browse and search Service Catalog
- View, create and bind services
- View application metrics
- View Cloud Foundry metadata
- and more...

Stratos: User Role



Developer



Administrator



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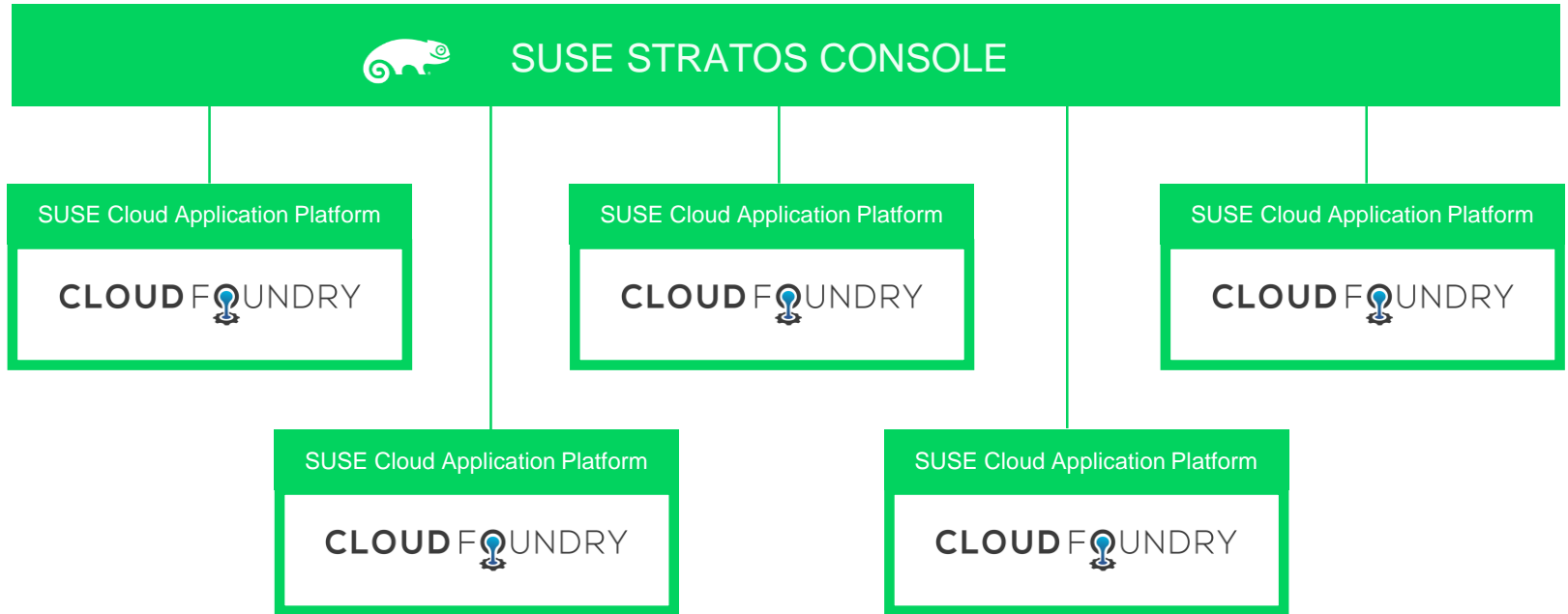
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CLOUDFOUNDRY

- View and launch applications
- Manage application lifecycle
- View application health and usage
- Browse and search marketplace catalogs
- and more...

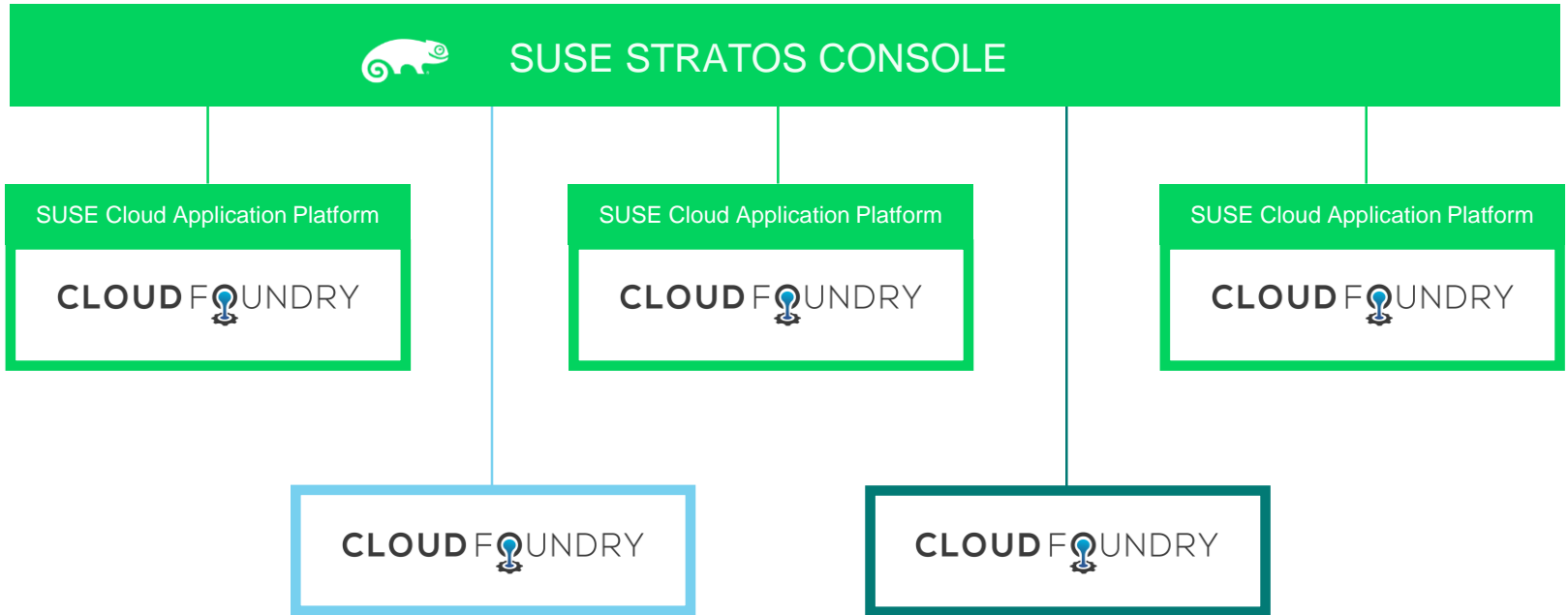
Stratos: Supports Multiple Cloud Foundry Clusters

- Manage multiple Cloud Foundry clusters from a single Stratos
- Easily switch between them and access aggregated views of applications

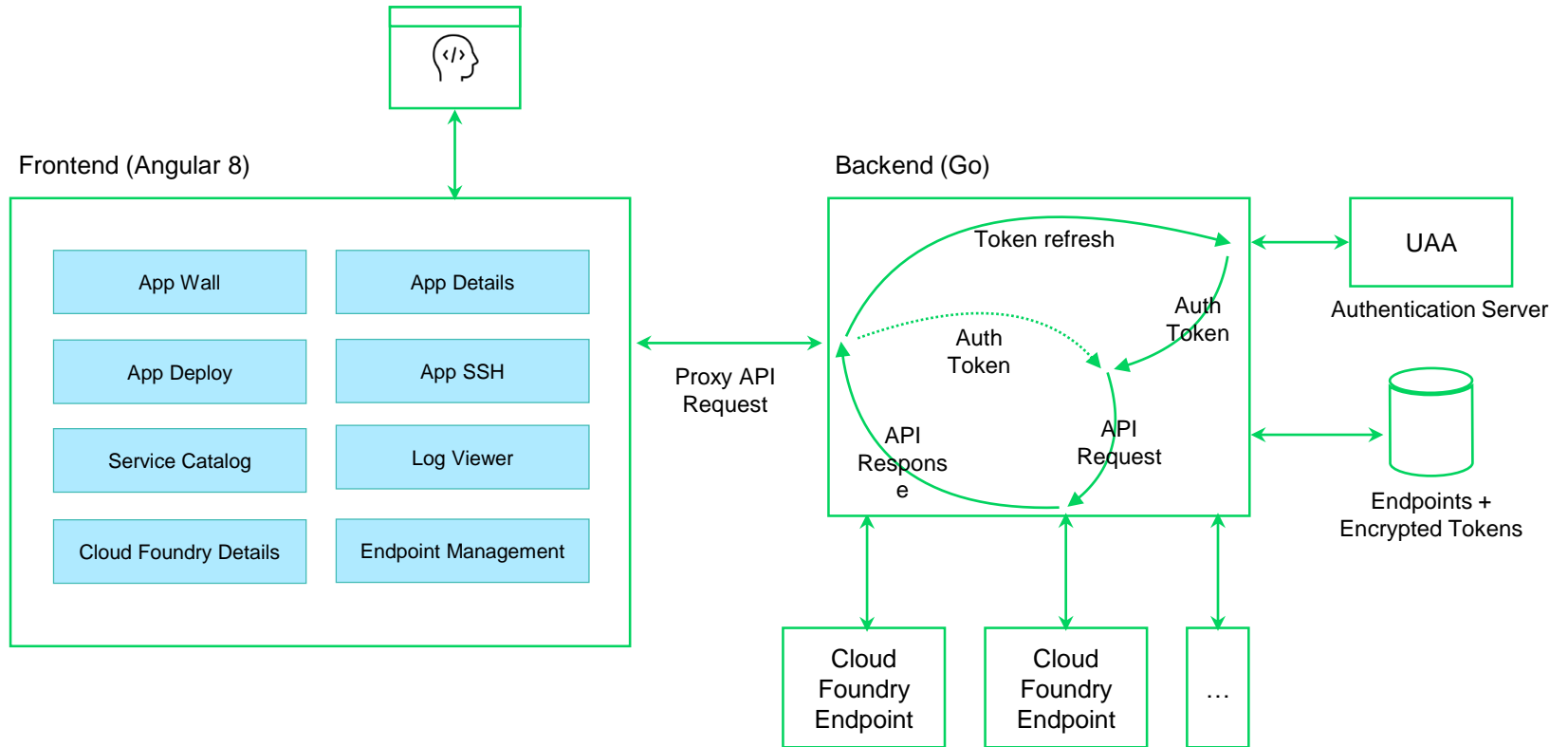


Stratos: Works with any Cloud Foundry

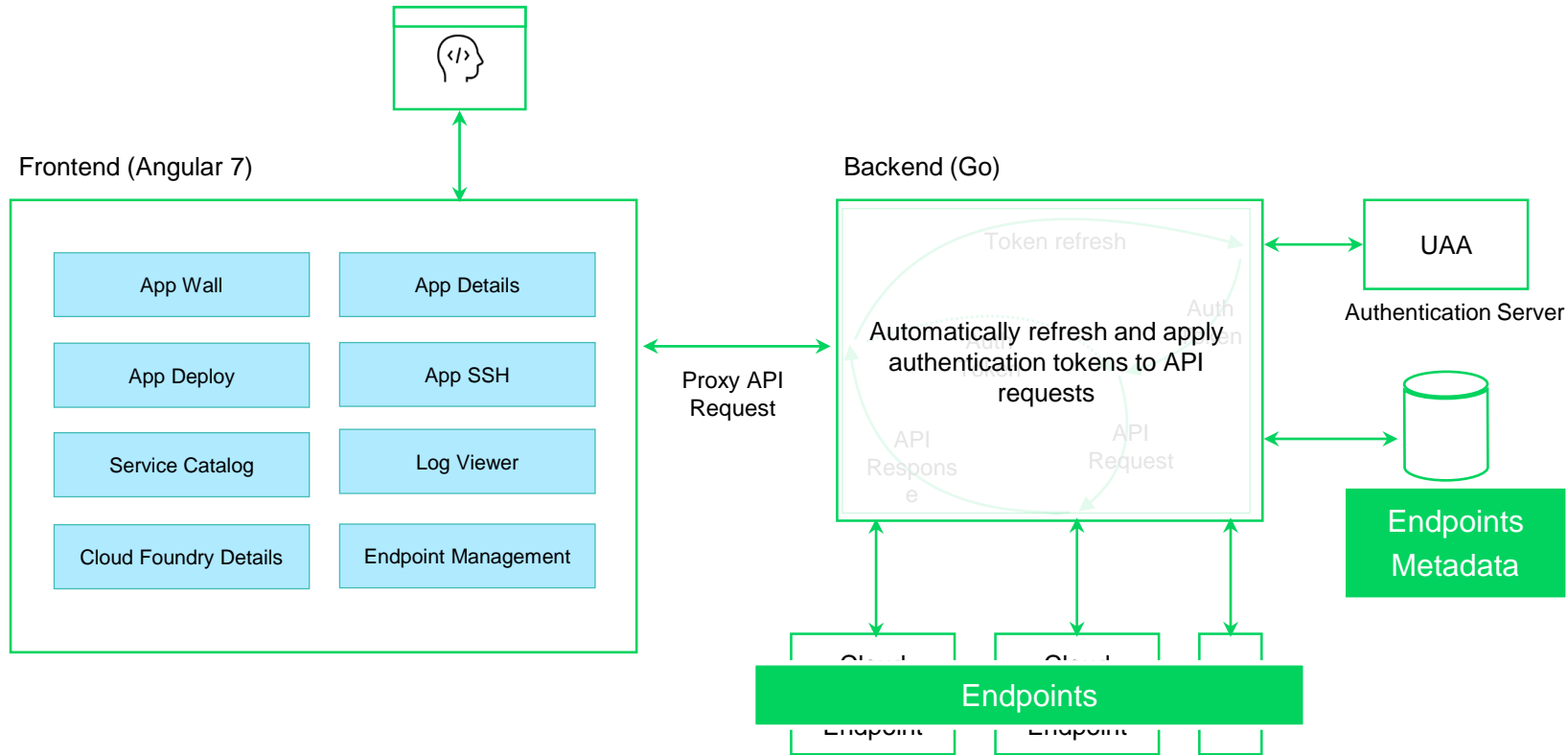
- Stratos works with the public Cloud Foundry API, so will work with any certified distribution



Stratos: High-Level Overview

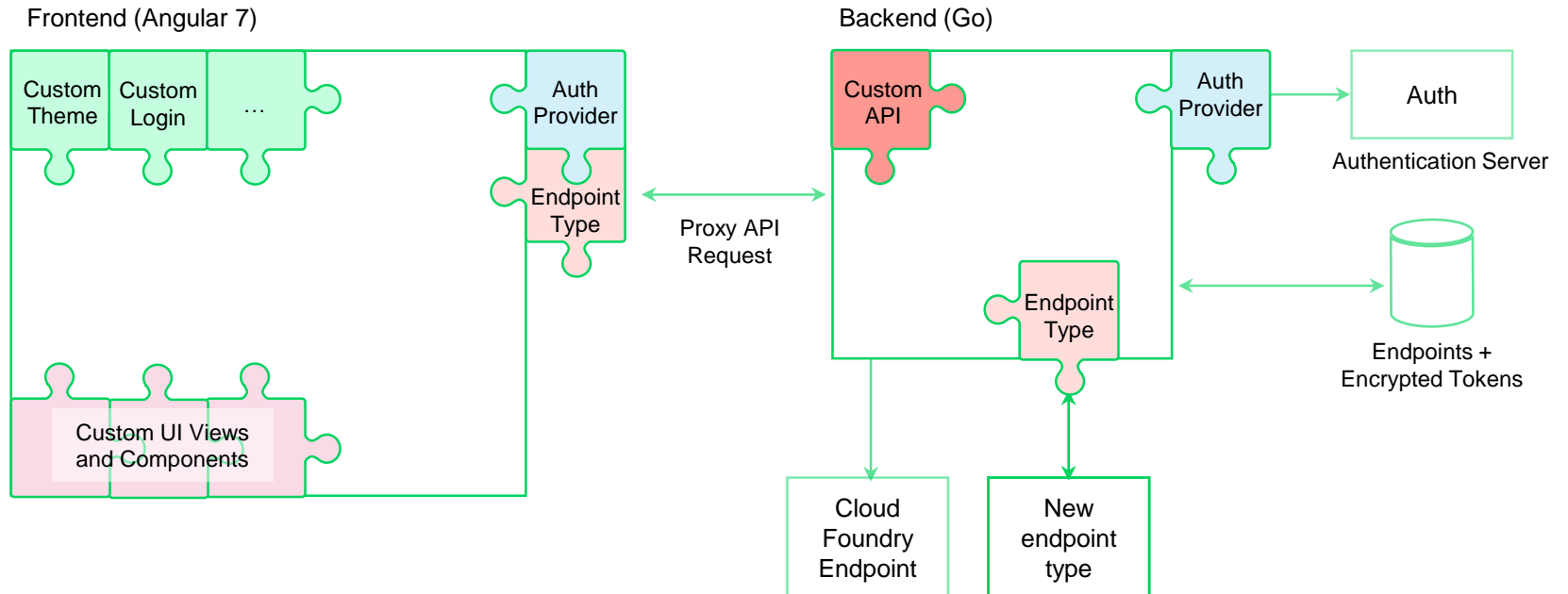


Stratos: High-Level Overview: Endpoints



Stratos: High-level Overview: Extensibility

- Stratos is designed to be extensible and customizable
- Both front-end and back-end can be extended





Stratos: Extensibility

- Allow users to add their customizations without having to modify core Stratos
- This is not dynamic plugins
- Backend plugins
 - Add new endpoint types
 - Add custom APIs
- Frontend
 - Custom login screen
 - Customize about page
 - Custom theme
 - Add new side navigation items
 - Add tabs to application and Cloud Foundry views
 - Add actions to App Wall, App, CF, CF Org, CF Space and endpoints view

Stratos: Extensibility

- Very easy to take an Angular component and make it a Stratos extension

```
import { ... }

@StratosTab({
  type: StratosTabType.Application,
  label: 'Example App Tab',
  link: 'example'
})
@Component({
  selector: 'app-tab-extension',
  templateUrl: './app-tab-extension.component.html',
  styleUrls: ['./app-tab-extension.component.scss']
})
export class AppTabExtensionComponent {}
```

Using Typescript decorators
for front end extensions

SUSE Cloud Application Platform

- Back to the SUSE Cloud Application Platform...



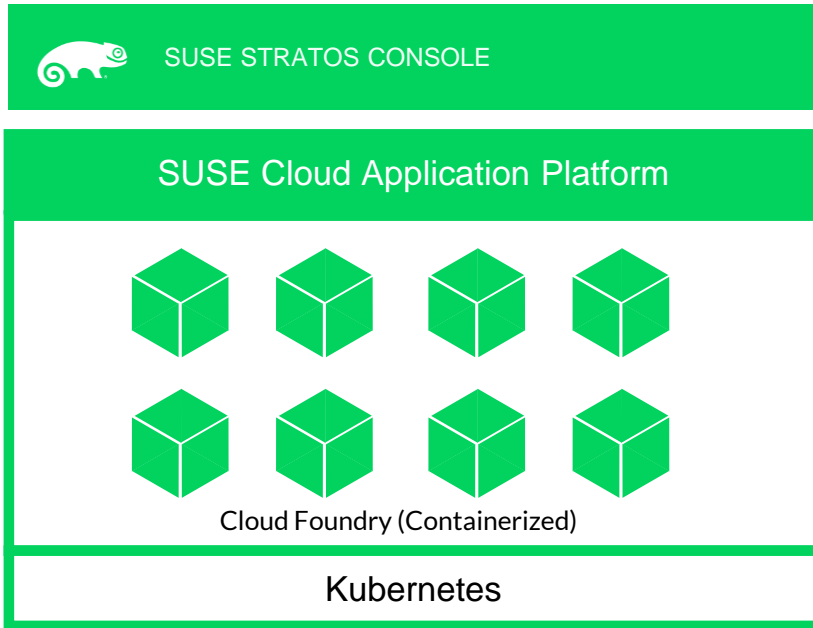
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SUSE Cloud Application Platform

CLOUDFOUNDRY

SUSE Cloud Application Platform

- SUSE Cloud Application Platform containerizes Cloud Foundry
- Deployed to a Kubernetes cluster using Helm



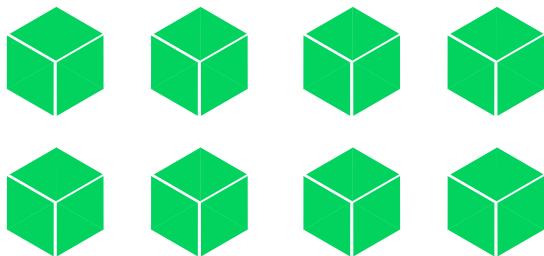
SUSE Cloud Application Platform

- Developers can build and run applications in Cloud Foundry
- They can also build and run containerized workloads on Kubernetes



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SUSE Cloud Application Platform



Cloud Foundry (Containerized)

Containerized Workloads



Kubernetes

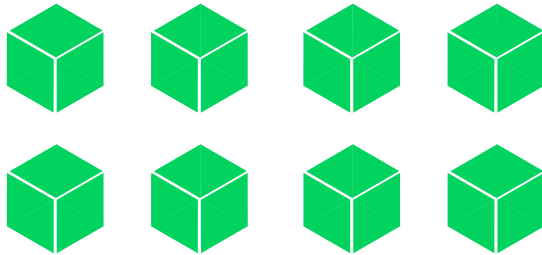
SUSE Cloud Application Platform: Multi-Cloud

- SUSE Cloud Application Platform can be deployed on a variety of Kubernetes distributions - some customers may have multiple deployments and configurations



SUSE STRATOS CONSOLE

SUSE Cloud Application Platform



Cloud Foundry (Containerized)

Containerized Workloads



Azure AKS



Amazon EKS



GKE



SUSE CaaS

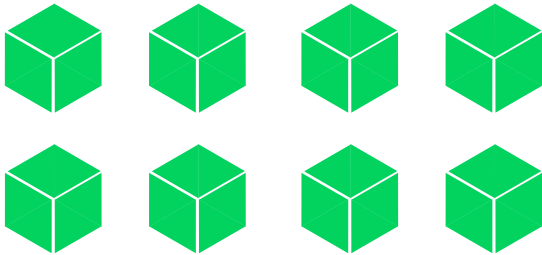
Extending Stratos

- Extend Stratos beyond Cloud Foundry to provide a single pane of glass for managing applications and workloads in both Cloud Foundry and Kubernetes



SUSE STRATOS CONSOLE

SUSE Cloud Application Platform



Cloud Foundry (Containerized)

Containerized Workloads



Azure AKS



Amazon EKS



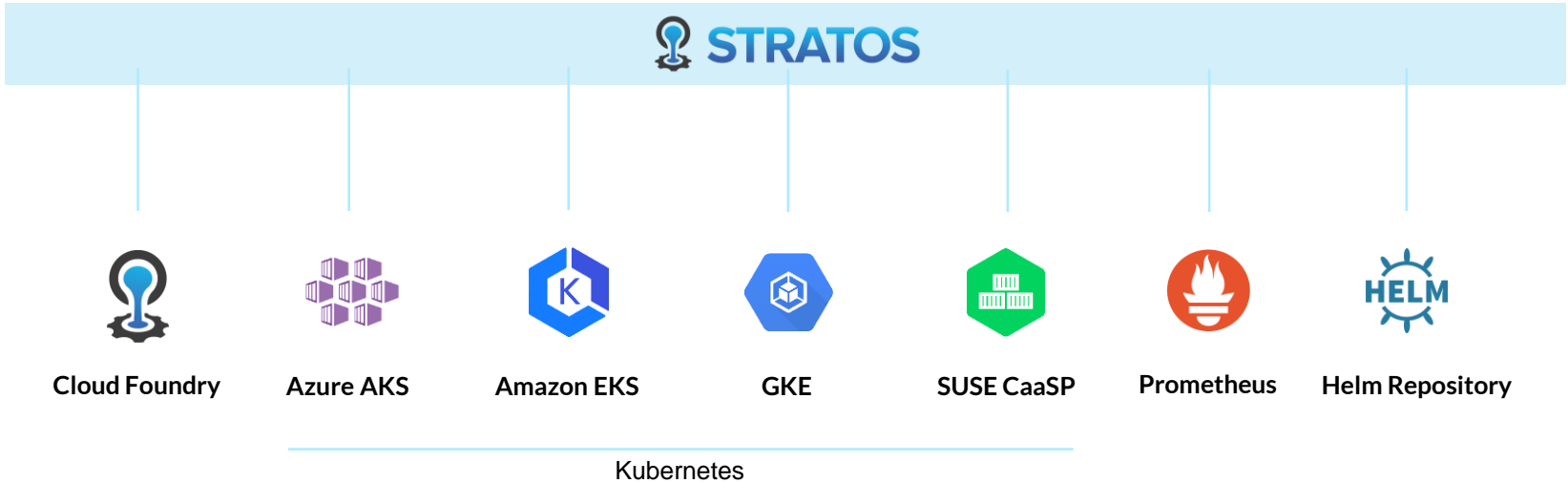
GKE



SUSE CaaS

Extending Stratos

- We have added support for more types of endpoint
- Building out front-end to support these endpoints



Extending Stratos: Kubernetes



Cloud Foundry



Kubernetes



Prometheus



Helm Repository

- Ability to connect Stratos to a Kubernetes cluster
- Authentication for Azure, AWS, GKE, and SUSE CaaSP
- Views aimed at helping users view SUSE Cloud Application Platform in their Kubernetes environment
- View namespaces, pods
- Link to Kubernetes dashboard if available

Extending Stratos: Metrics



Cloud Foundry



Kubernetes



Prometheus



Helm Repository

- Metrics Helm Chart allows Prometheus to be deployed with a nginx providing authentication and
 - CF Firehose exporter collecting metrics from Cloud Foundry
 - Kube Node Exporter collecting metrics from Kubernetes
- Stratos views extend to include metrics when a metrics endpoint is connected
- Initial set of views to show CPU, disk and memory metrics

Extending Stratos: Helm



Cloud Foundry



Kubernetes



Prometheus



Helm Repository

- Integration of Open-Source Monocular project
- Add Helm repositories to Stratos
- View charts
- View releases and release detail
- Install a Helm Chart from Stratos (create release)
- Delete a release

Stratos And Cloud Application Platform Console

STRATOS

- Open-source
- Cloud Foundry Management UI
- Cloud Foundry incubated
- Includes support for optional Metrics stored in Prometheus
- Designed to be extensible



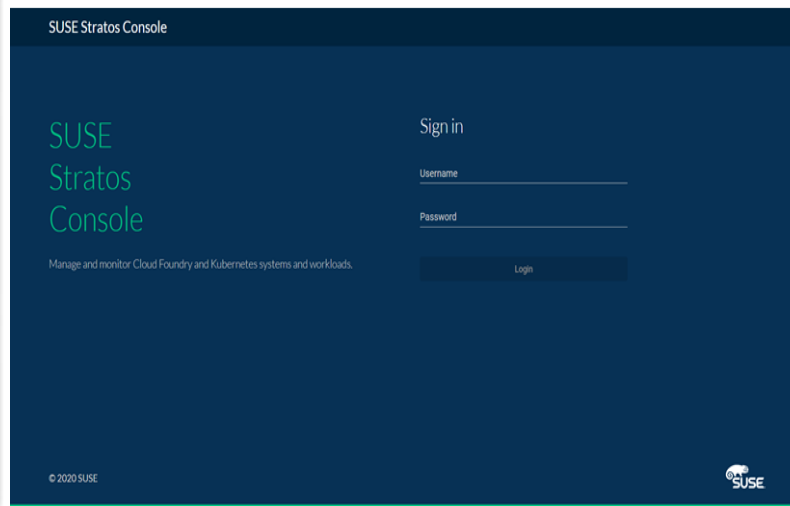
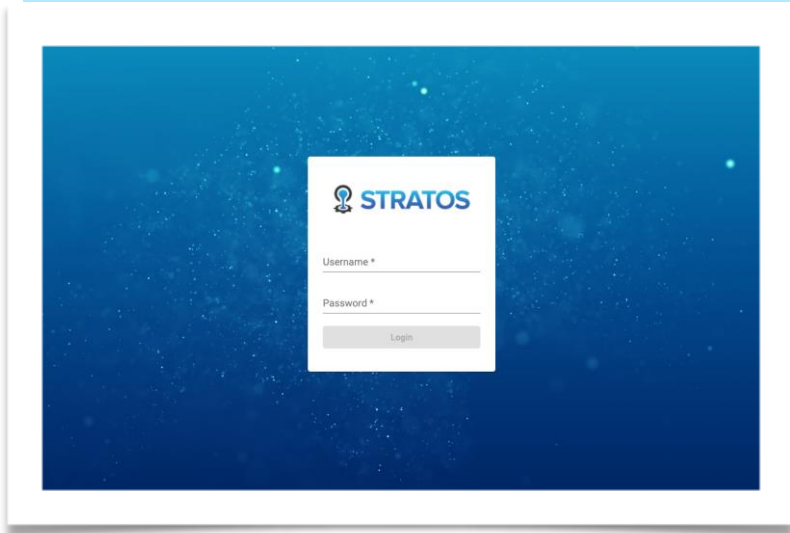
SUSE STRATOS CONSOLE

- Open-source
- Builds on Stratos
- SUSE-branded
- SLE-based images
- Installed via Helm
- Extensions for:
 - Kubernetes
 - Helm

Stratos And Cloud Application Platform Console

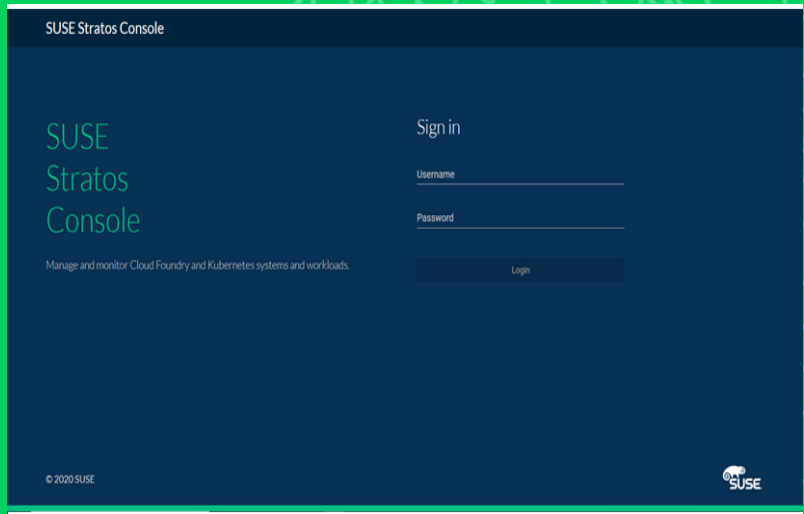


SUSE STRATOS CONSOLE



<https://github.com/cloudfoundry-incubator/stratos>

<https://github.com/SUSE/stratos>



Demo

DISCLAIMER:

Some of the features demonstrated are currently in tech preview - they may change into new releases of the product

Please Submit Your Questions



Thank You

The logo features the text "SUSEcon digital '20" in white. "SUSE" is in a bold, uppercase sans-serif font, while "con digital" is in a lowercase sans-serif font. The "'20" is contained within a white, rounded, teardrop-shaped icon. The background is a vibrant green with a white, stylized pattern of overlapping hexagonal and pentagonal shapes, resembling a honeycomb or a digital mesh, that flows across the image.

SUSEcon digital '20

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