



# Building and deploying OpenEdge PASOE applications on Kubernetes with GitOps

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# ProMark is an international people-to-people business

- Introduction to ProMark



**40+**

years of experience

**85+**

ProMark team members

**20+**

countries with customers

**300,000+**

daily ProMark users

**45,000+**

annual development hours

# ProMark & Progress

- ISV delivering the Workforce Management solution **ProMark**
- Progress ISV Titanium Partner
  - Partner since 1995
- Key Progress technologies
  - Progress OpenEdge
  - Progress Telerik



# Supporting 300+ customers primarily in Manufacturing

## Manufacturing > 70% of revenue

## Services < 30% of revenue

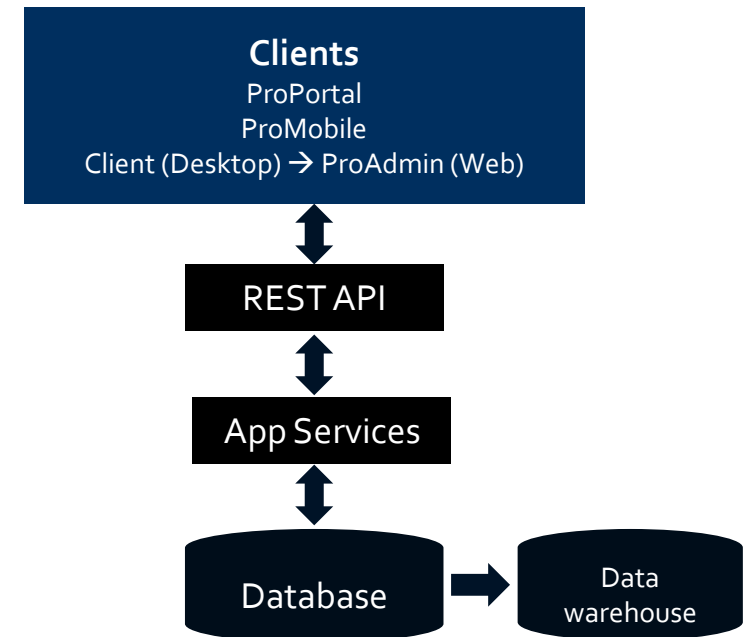
- Production
- Food & Beverage
- Building & Engineering
- Aerospace & Defense
- Automotive
- Building Materials
- Energy & Resources
- Packaging
- Pharma & Life Science
- Pulp & Paper

- Financials
- IT
- Retail
- Supply Chain
- Transport & Logistics



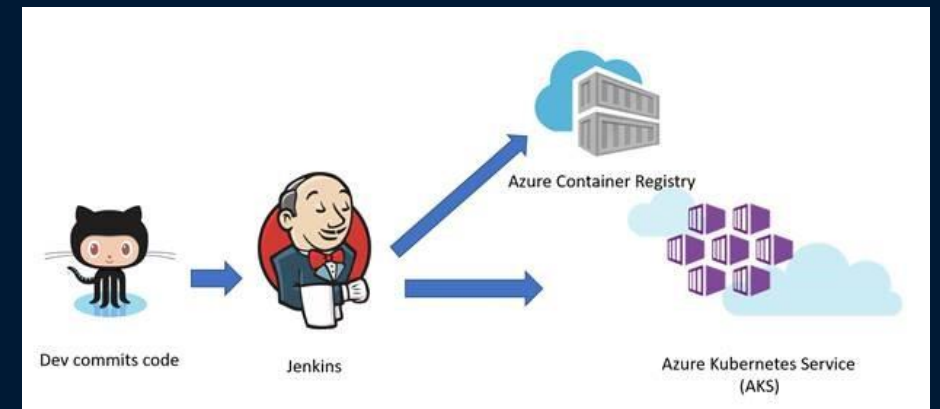
# Backend & Database technology stack

- All customers on one codebase
- OpenEdge 12.8
- Database Platforms: OpenEdge and some MS SQL (for BI)
- REST API Layer on PASOE
  
- Codebase
  - 3.000 source code files
  - Procedural lines: 1.500K+ & ObjectOriented lines: 220K+
  - REST API's 250+
  - All Code changes, Schema changes, System data changes within Roundtable TSMS since 1995 (Also pushed to git for automated builds and deployments)
  - GIT repo's for front-end code

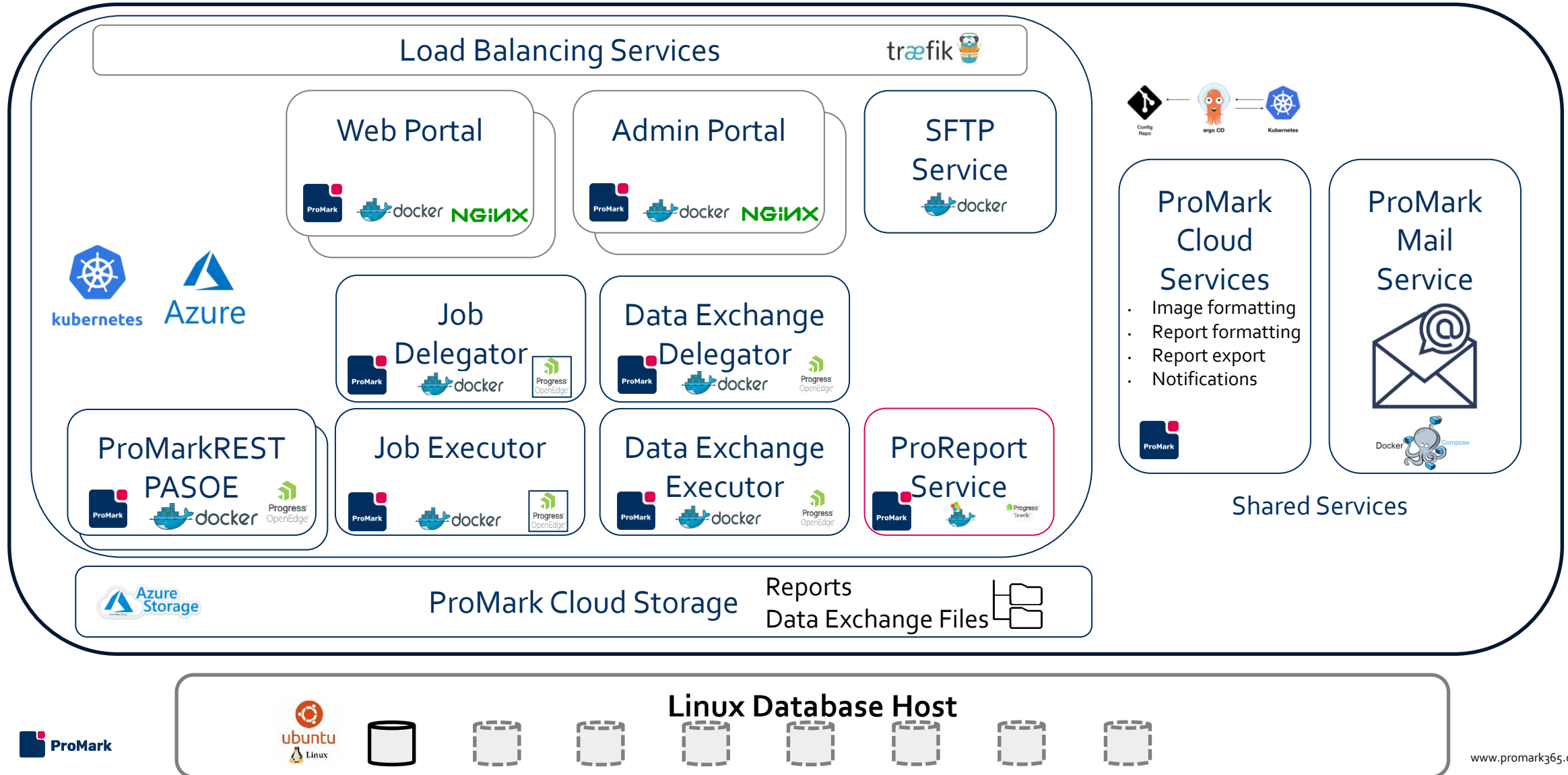


# Kubernetes Deployment model

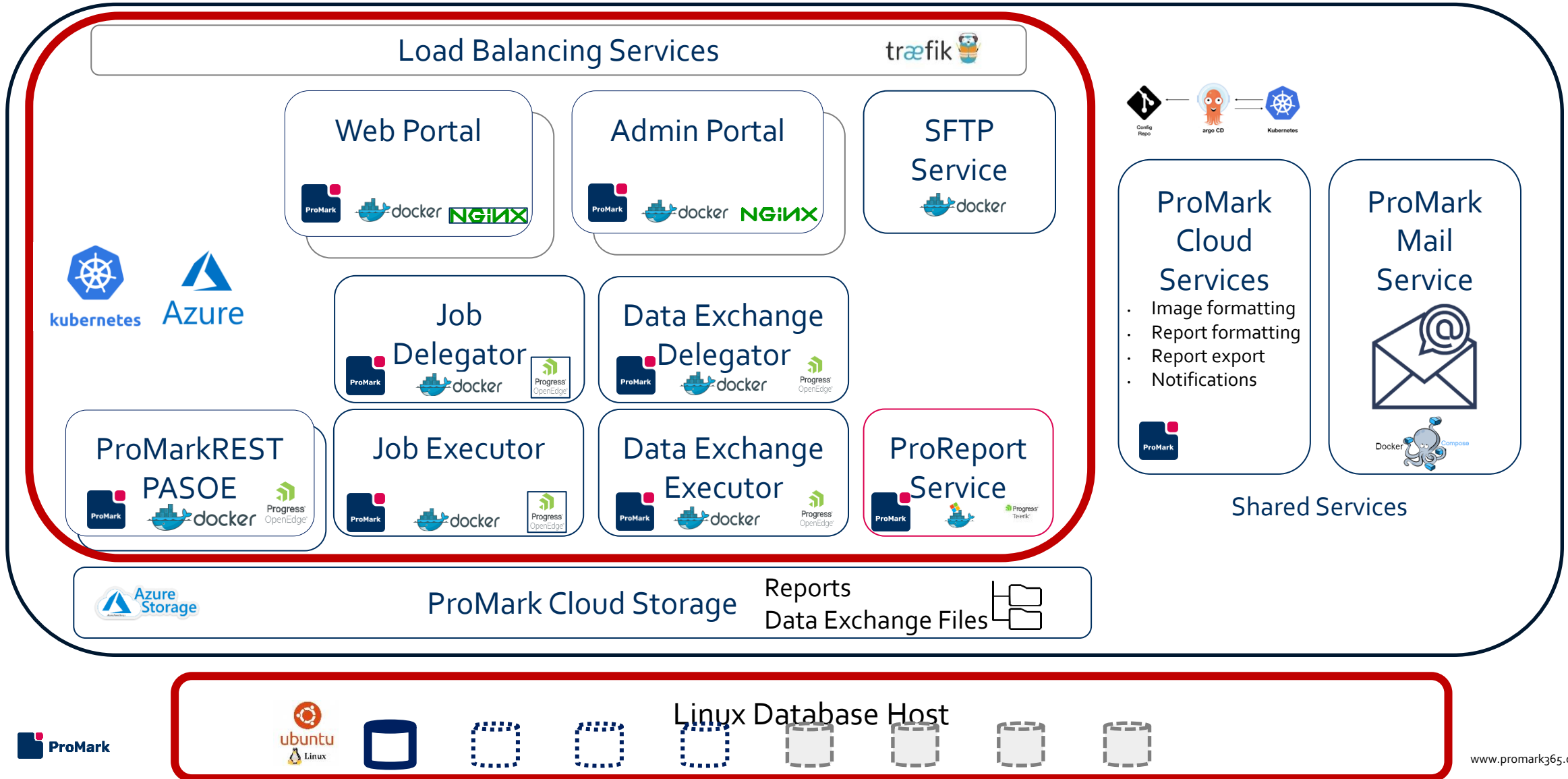
- Individual deployments per customer (full stack in Azure Kubernetes)
- Deployed and updated via GitOps (ArgoCD)
- Application stack is fully containerized on AKS (Azure Kubernetes Services)
  - Web portals
  - OpenEdge ABL Delegators (batch clients) & Executors (PASOE)
  - Databases on Linux servers (in the same Proximity Placement Group) – or deployed directly in Kubernetes pods



# ProMark Native Cloud Container Architecture

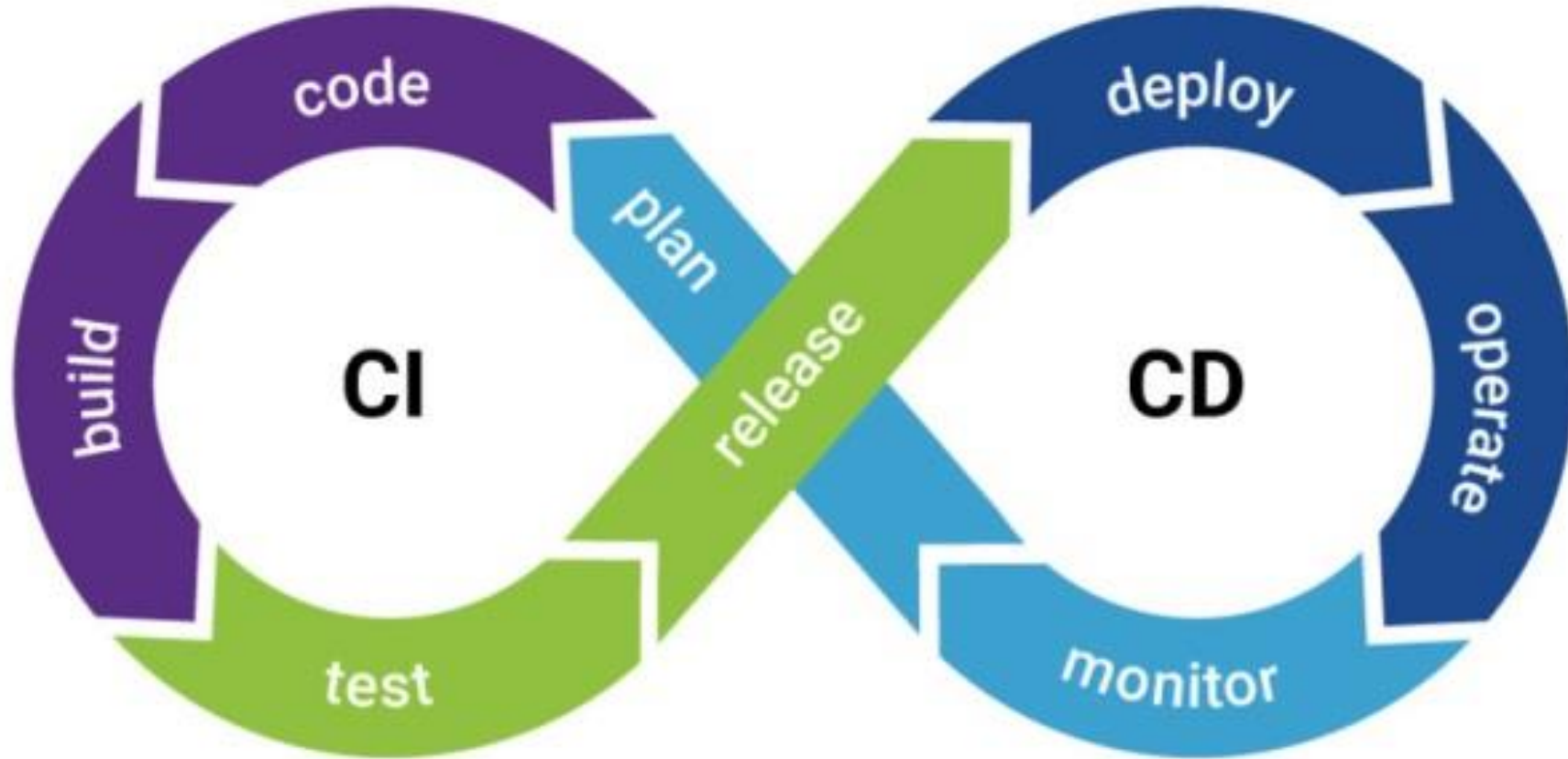


# ProMark Native Cloud Container Architecture per Customer

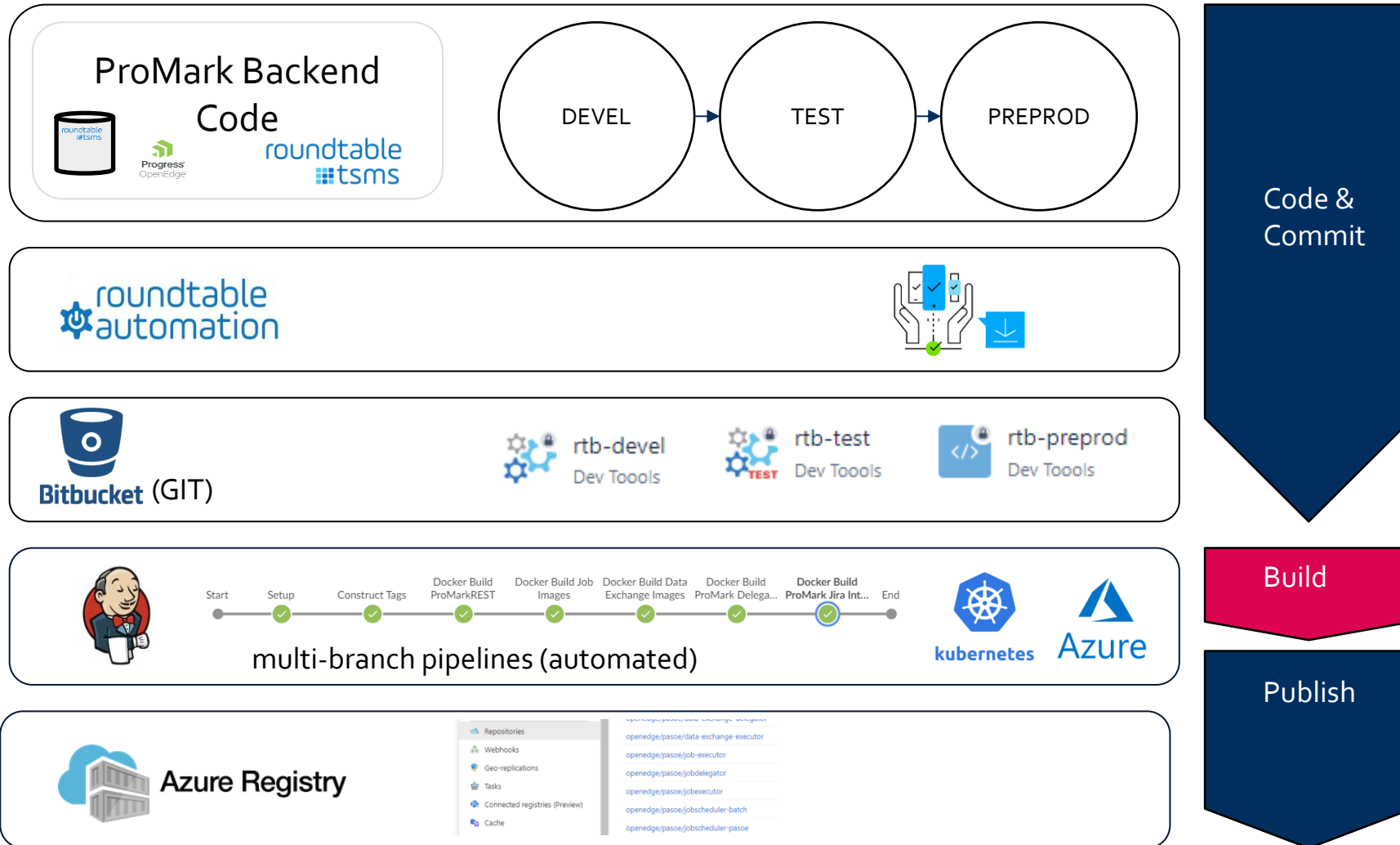




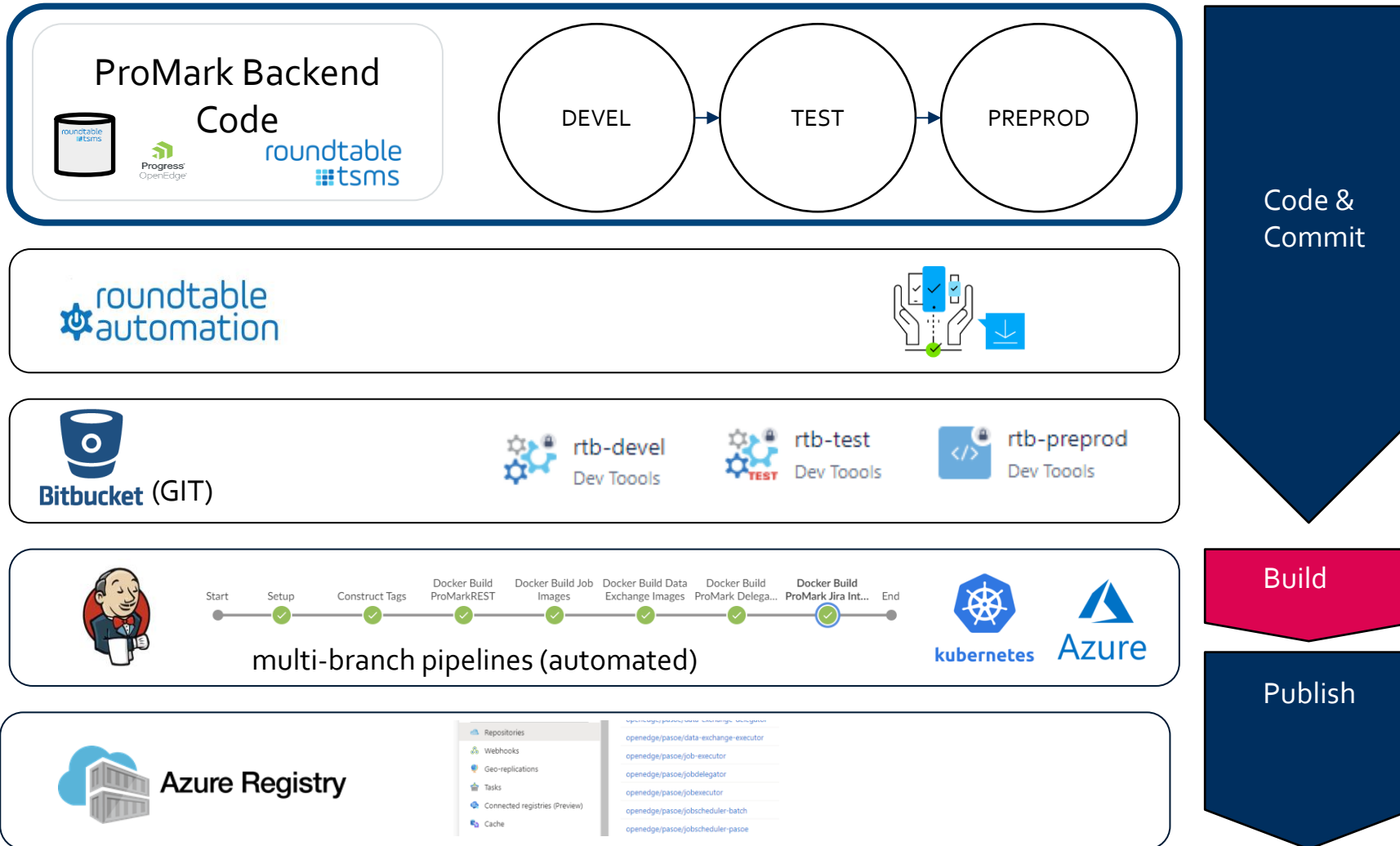
# Building ProMark Native Cloud Images



# ProMark Native Cloud Container – Builds (Backend)

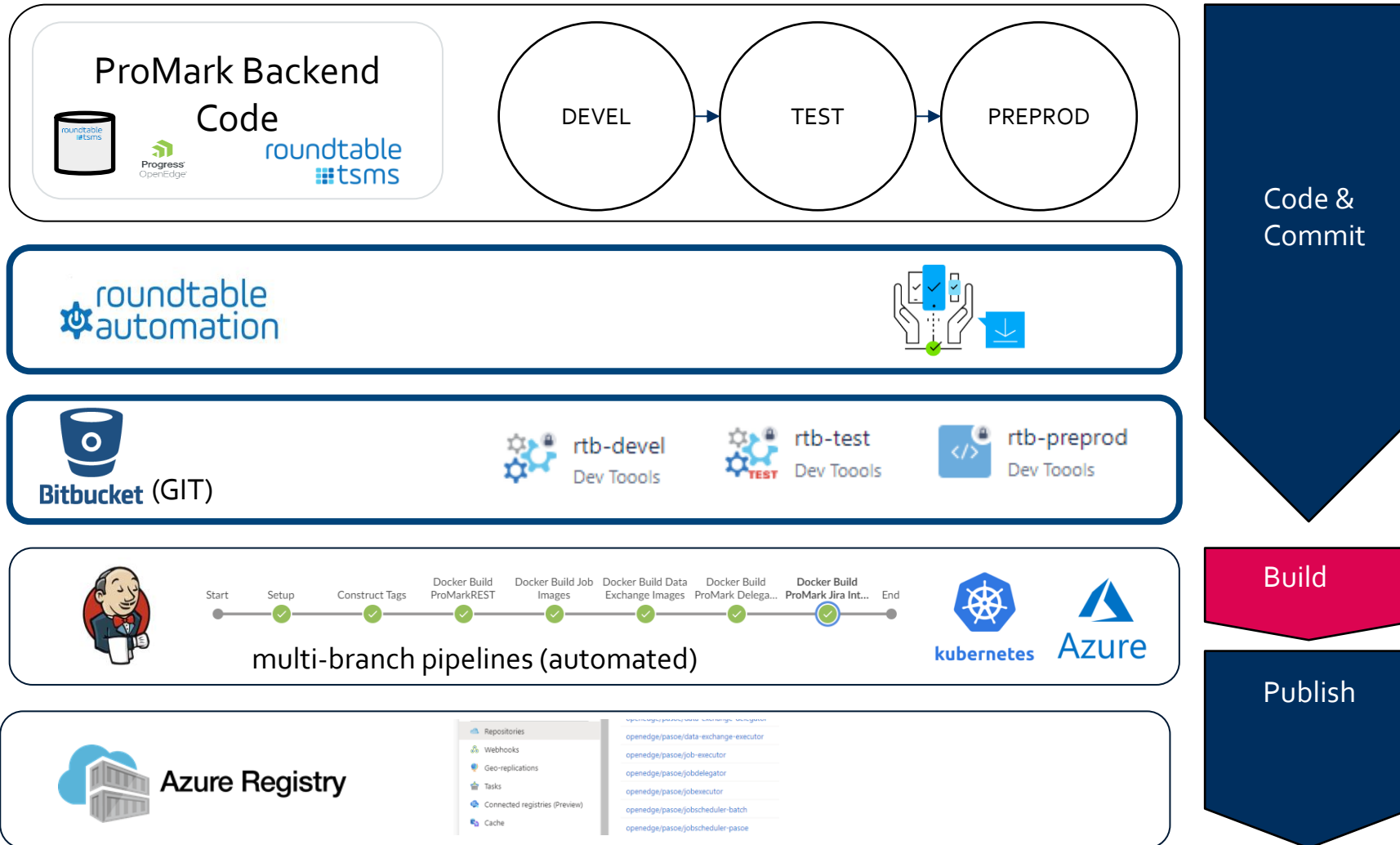


# ProMark Native Cloud Container – Builds (Backend)



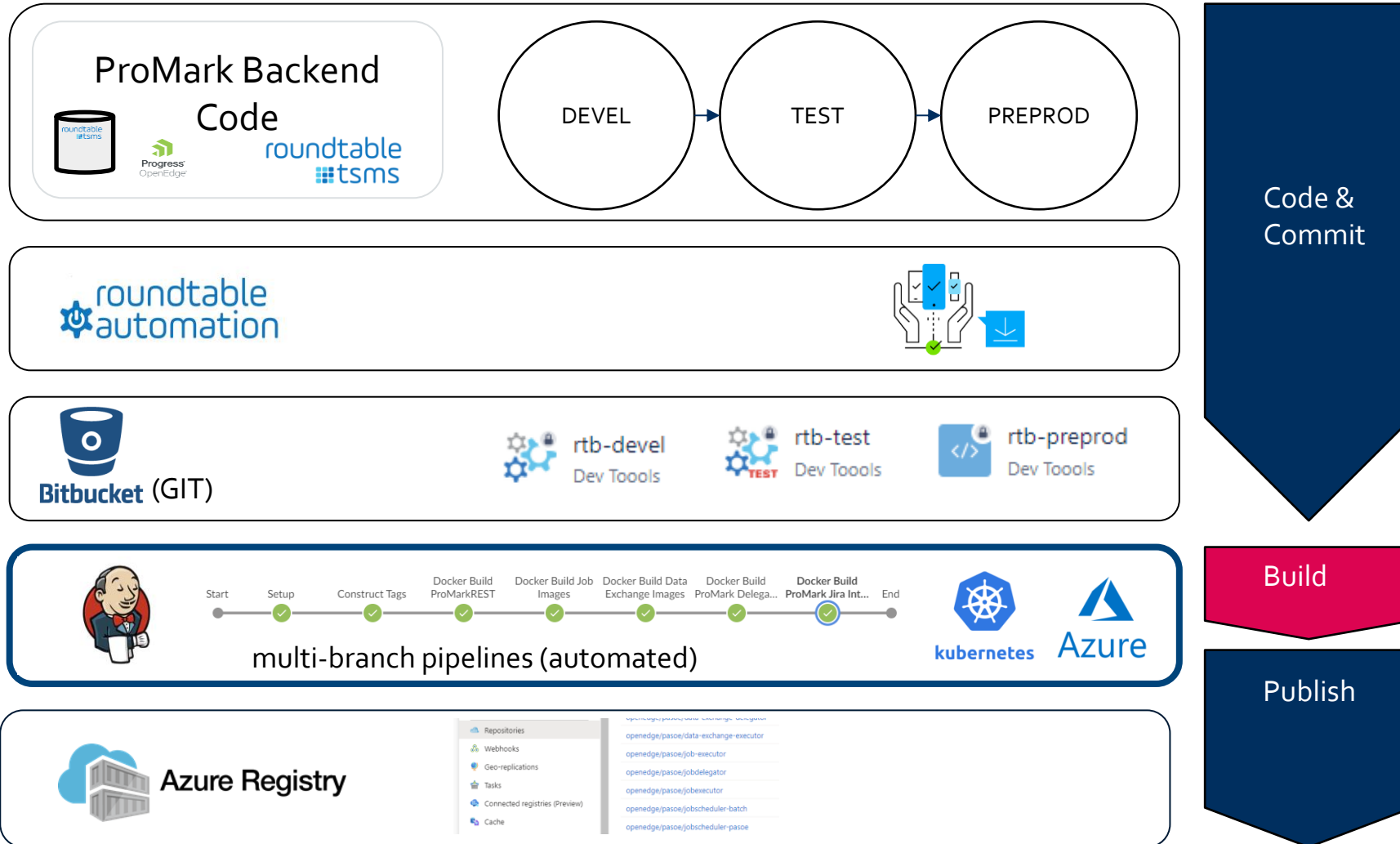
- Backend code managed in Roundtable TSMS

# ProMark Native Cloud Container – Builds (Backend)



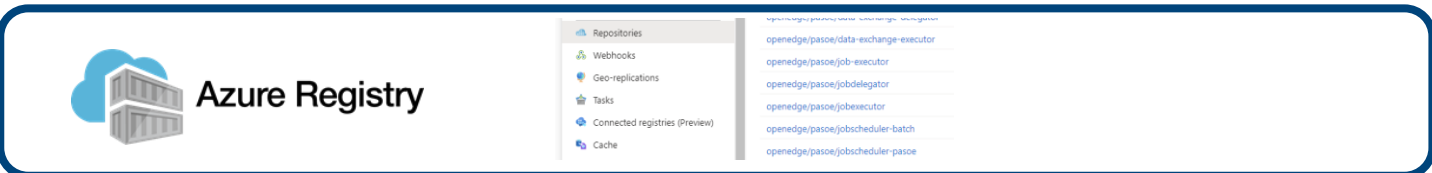
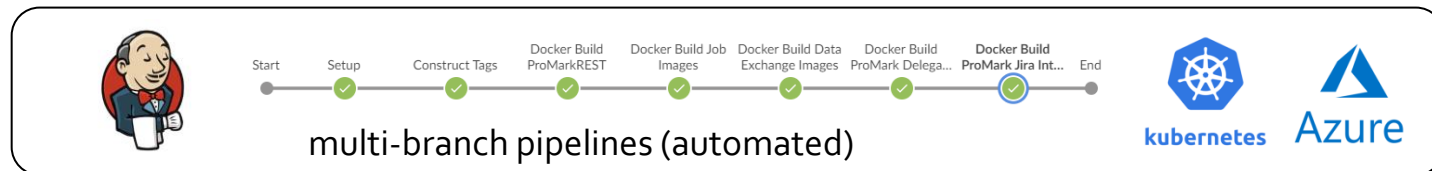
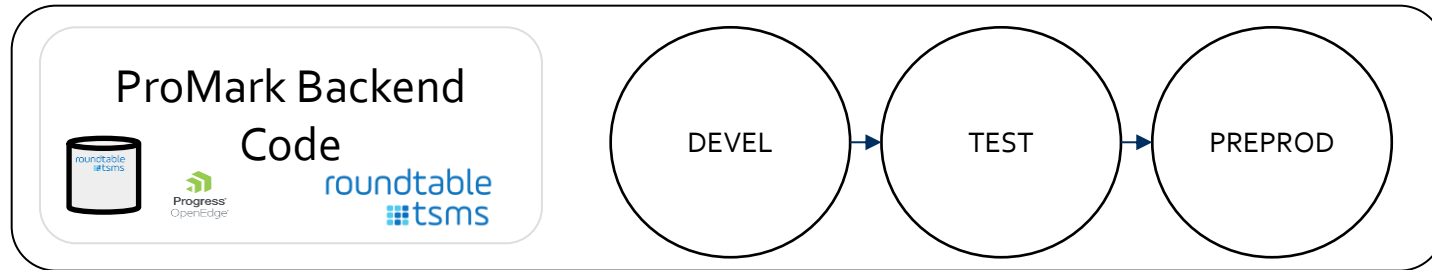
- Code checked into Roundtable → pushed to BitBucket (git) using Roundtable Automation

# ProMark Native Cloud Container – Builds (Backend)



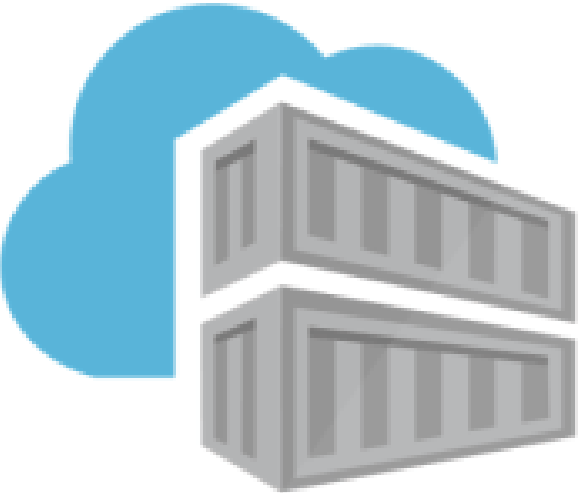
- Jenkins multi-branch pipeline automatically builds docker images from **Jenkinsfile** in repos

# ProMark Native Cloud Container – Builds (Backend)



- New images are pushed to **Azure Container Registry**
- Images tagged with branch and version numbers
- Front-end images are also built automatically from git (without Roundtable)

# Demo



# Jenkins multi-branch pipeline

The screenshot shows the Jenkins interface for a multi-branch pipeline. The breadcrumb navigation is: Dashboard > rtb-devel MultiBranch Pipeline > DEVEL > 5.81.00.760-devel. The main content area displays a successful build for '5.81.00.760-devel' on Sep 19, 2024, at 1:34:25 PM. A left sidebar contains navigation options: Status (selected), Changes, Console Output, Edit Build Information, Delete build '5.81.00.760-devel', Parameters, Timings, Git Build Data (two instances), Open Blue Ocean, Embeddable Build Status, Restart from Stage, Replay, Pipeline Steps, Workspaces, and Previous Build. The main content area includes a 'Changes' section with one change: '1. 5.81.00.D10 (details / bitbucketweb)'. Below this is a 'Branch indexing' section. A 'This run spent:' section lists: 2 min 12 sec waiting, 24 min build duration, and 25 min total from scheduled to completion. Two 'git' sections provide revision and repository information. The first git section shows revision d413f3c17d28c96e335cd96e34ed40de56cbcb94 and repository https://bitbucket.org/markinformation/promarkjenkins.git with branch master. The second git section shows revision ec456b9551c498703ce867a67ad34270856b87ac and repository https://mi-jenkinsbuild@bitbucket.org/markinformation/rtb-devel.git with branch DEVEL. A 'Build info:' section contains two fields: 'Build Version Number: 5.81.00' and 'Docker Build Tag: 5.81.00.760-devel'. At the bottom, the Git info is: Branch: DEVEL Commit: ec456b9551c498703ce867a67ad34270856b87ac.



# Azure Container Registry

Microsoft Azure Search resources, services, and docs (G+) Copilot

Home > Container registries > pmkeuudev | Repositories >

## pmkeuudev | Repositories

Container registry

Search Refresh

- Overview
- Activity log
- Access control (IAM)
- Tags
- Quick start
- Events
- Settings
- Services
- Repositories**
- Webhooks
- Geo-replications
- Tasks
- Connected registries (Preview)
- Cache
- Repository permissions

- openedge/oe-db
- openedge/oe-pas
- openedge/pasoe/data-exchange-de...
- openedge/pasoe/data-exchange-ex...
- openedge/pasoe/job-executor
- openedge/pasoe/jobdelegator
- openedge/pasoe/jobexecutor
- openedge/pasoe/jobscheduler-batch
- openedge/pasoe/jobscheduler-pasoe
- openedge/pasoe/pas-prodiscoverer
- openedge/pasoe/promark-pas**
- openedge/pasoe/promark-pas-pro...
- openedge/workspace-oe
- promark/proadmin
- promark/prodoc
- promark/promarkcloudservices

## openedge/pasoe/promark-pas

Repository

Refresh Start artifact streaming Manage deleted artifacts Delete repository

Essentials

Repository : openedge/pasoe/promark-pas Tag count : 1596

Last updated date : 9/19/2024, 4:02 PM GMT+2 Manifest count : 1520

Artifact streaming : Inactive

Search to filter tags ...

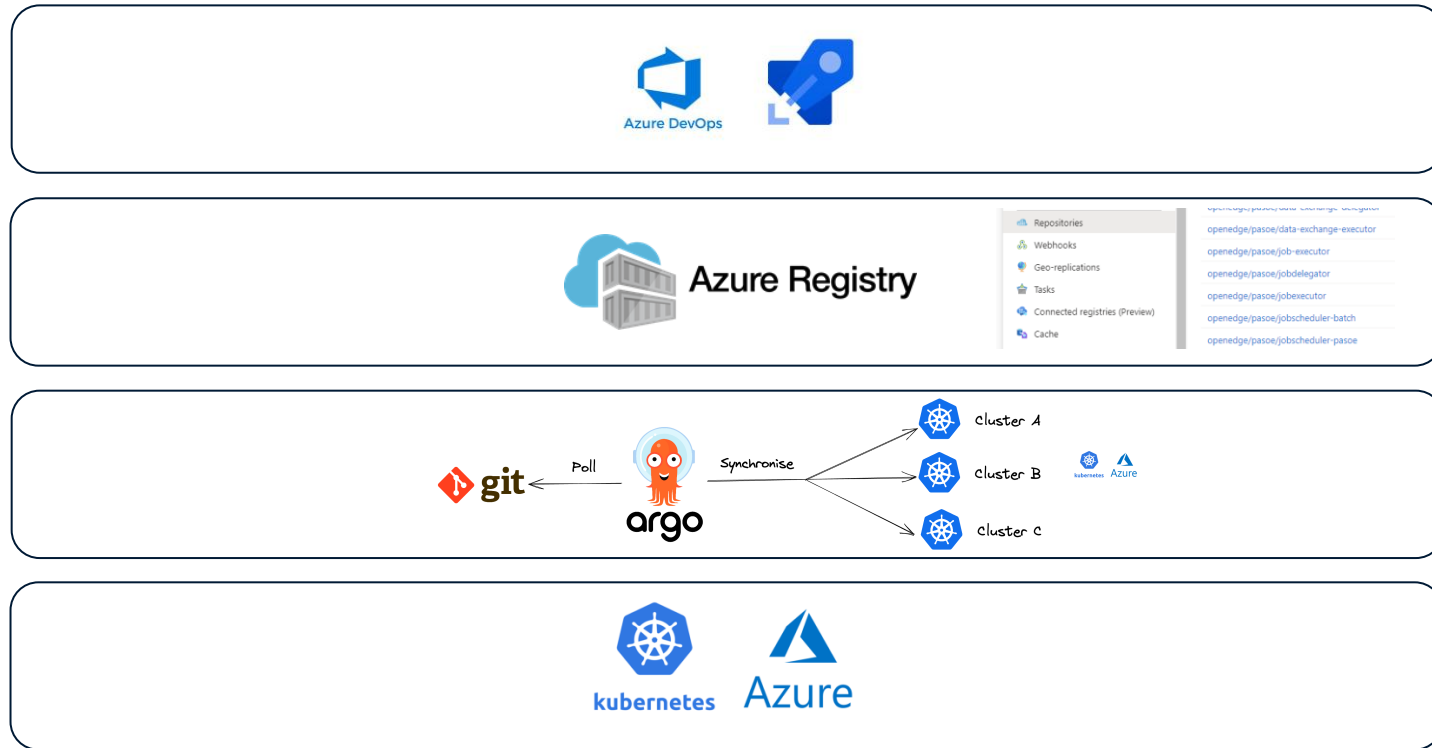
Tags ↑↓	Digest ↑↓	Last modified
5.81.00-test-latest	sha256:76245956c5da93ea1549ba945807bf2d83fbda54548fa48b0ab...	9/19/2024, 4:02 PM GMT+2
5.81.00.595-test	sha256:76245956c5da93ea1549ba945807bf2d83fbda54548fa48b0ab...	9/19/2024, 4:02 PM GMT+2
5.81.00-devel-latest	sha256:f278a6bcd5a5df5ed84fd02c665b7f29555bb1abc10c113a5cfe0...	9/19/2024, 3:49 PM GMT+2
5.81.00.760-devel	sha256:f278a6bcd5a5df5ed84fd02c665b7f29555bb1abc10c113a5cfe0...	9/19/2024, 3:49 PM GMT+2
5.81.00.594-test	sha256:fe682372ff1afe27c1b44fde5e3b5e2f865f30b8feb677fdc99eb4...	9/19/2024, 2:45 PM GMT+2
5.81.00.759-devel	sha256:9ba3603a65512035838db4dc5f3b02a75030ad81600a02055e8...	9/19/2024, 2:34 PM GMT+2
5.81.00.593-test	sha256:3187dc757e20ba264ca8330c301bed51cbdd39ca870537377b5...	9/18/2024, 1:41 PM GMT+2
5.81.00.758-devel	sha256:c44f9a9a5807f0126f76a6e8a67bef5ba90546f85fd818ccc7f6a5...	9/18/2024, 1:30 PM GMT+2
5.81.00.757-devel	sha256:dada179bc9c4da1192cb8ebc39501cfd6857f8afb02231c12d3e...	9/18/2024, 11:31 AM GMT+2

## ProMark Native Cloud Container – Deployment

- Deployments triggered manually via Azure Devops Pipelines
- Deployment pipelines create and commit manifest files for ProMark Native Cloud instance in git repo
  - used by argocd to create the instance in Kubernetes cluster
- Updates are made by modifying the version-controlled manifest files (.yaml) and committing them to git
  - Changes deployed to Kubernetes by argocd



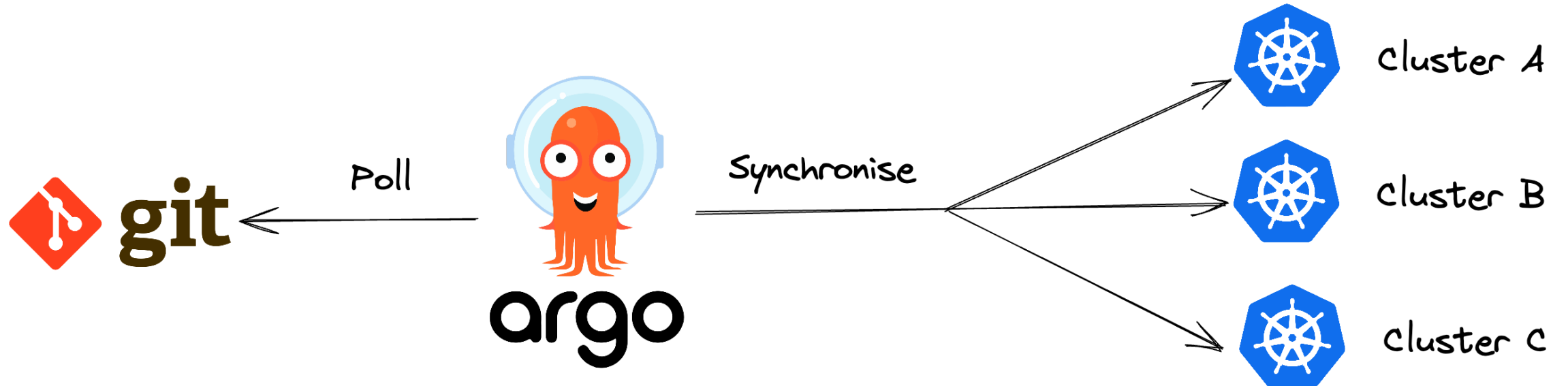
# ProMark Native Cloud Container – Deployments



- Deployments triggered from Azure DevOps pipelines
- Creates & commits manifest files to git used by argocd to deploy to Kubernetes



# Demo



# Demo

- ProMark Native Cloud auto-updates

Demo by  
**Henrik Larsen – Tech Lead, ProMark DevOps team**



# Demo of automatic update of ProMark Kubernetes-based environment (CD)

2024-09-20 02:53 UTC

Recorded by

Henrik Larsen

Organized by

Henrik Larsen

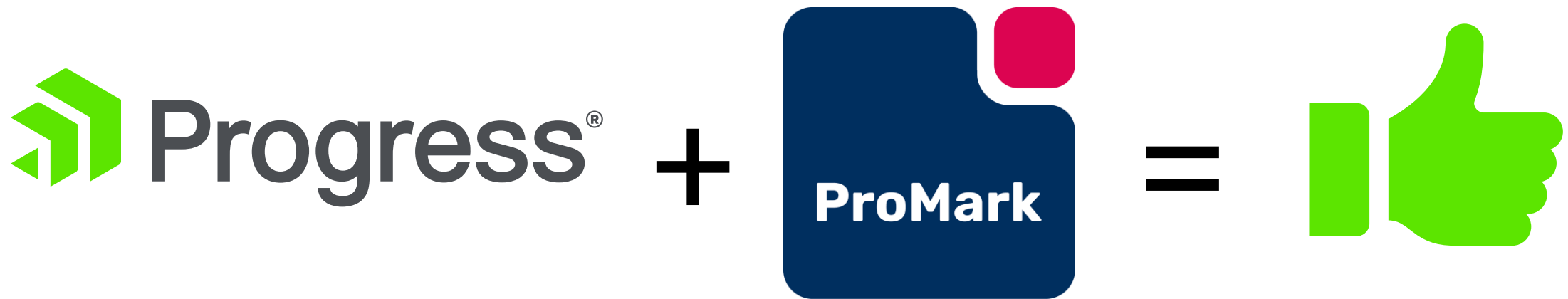
# Summary

- Application stack components built automatically from git repos to create Docker images stored in Azure DevOps
  - **Jenkinsfile** included in each repo – picked up by Jenkins multi-branch pipeline
  - Version numbering and image tagging based on application version and git branches
  - Images stored in Azure Container Registry (ACR)
- Deployment structure defined in Kubernetes Helm Charts
- Initial environment deployments triggered manually by Azure DevOps pipeline
  - Helm deployments triggered by argocd
  - Updates done manually via manifest files and git - or with automatic update pipelines



**SUMMARY**

# Thank You



Questions welcome!

Contact: [tha@promark365.com](mailto:tha@promark365.com)