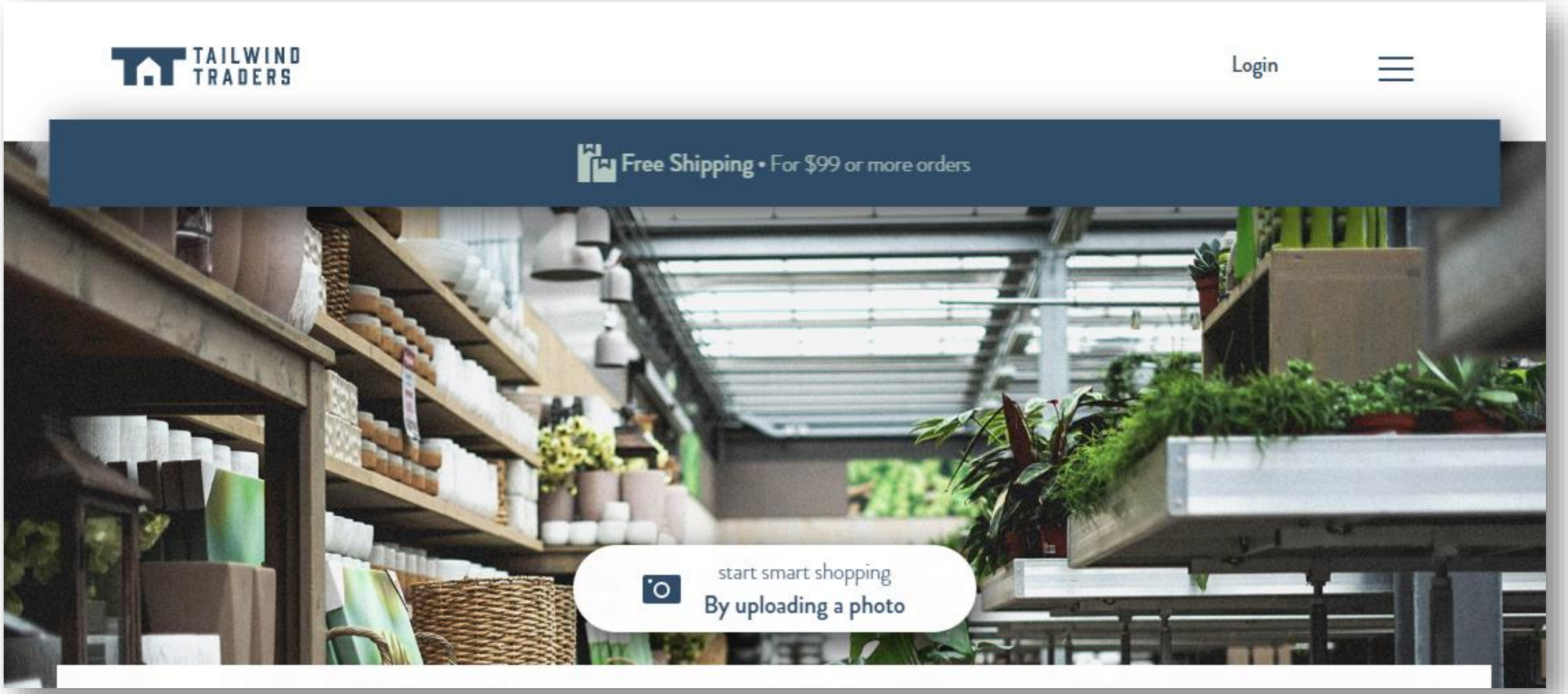
Microsoft

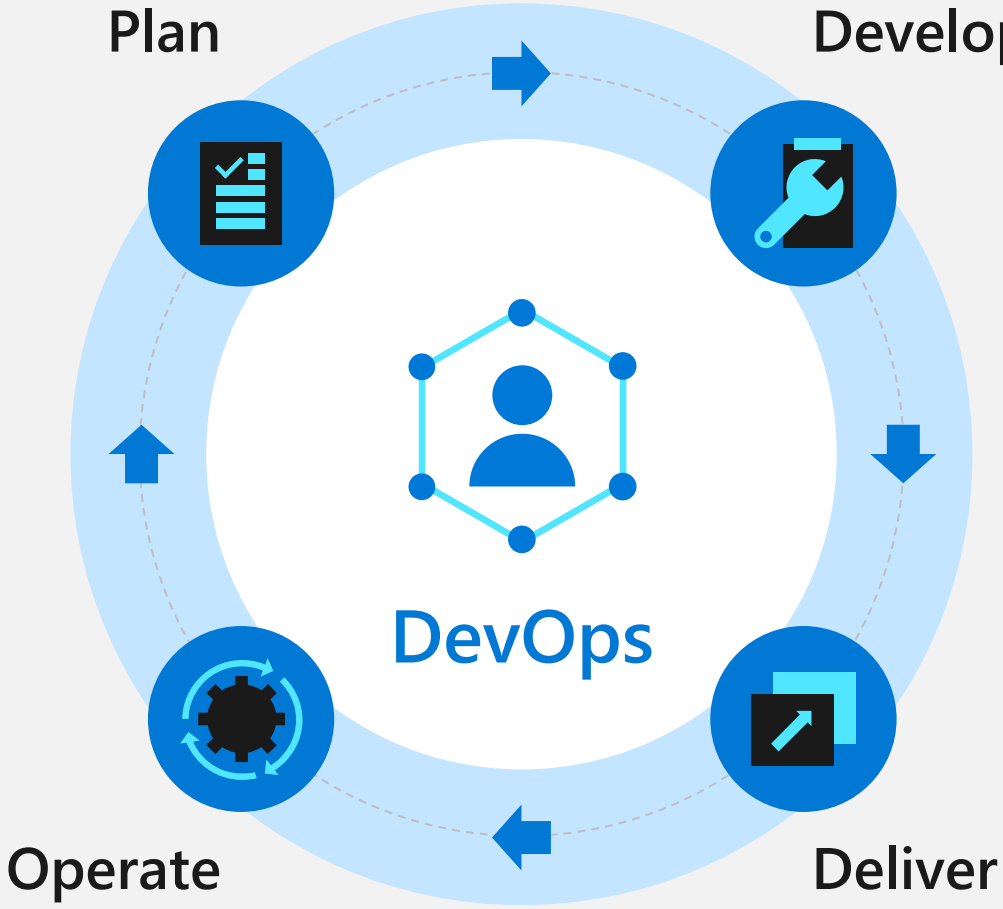
Delivering Change to the Cloud

Tailwind Traders



DevOps Accelerates Delivery

> DevOps is the union of **people**, **process**, and **products** to enable continuous delivery of value to your end users.
>
> — Donovan Brown



CI and CD

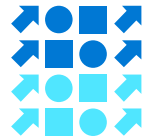
Continuous Integration

Continuous Delivery

Continuous Deployment

Continuous Integration

- Your changes work with everyone else's changes
- Your code still builds
- Your tests still run

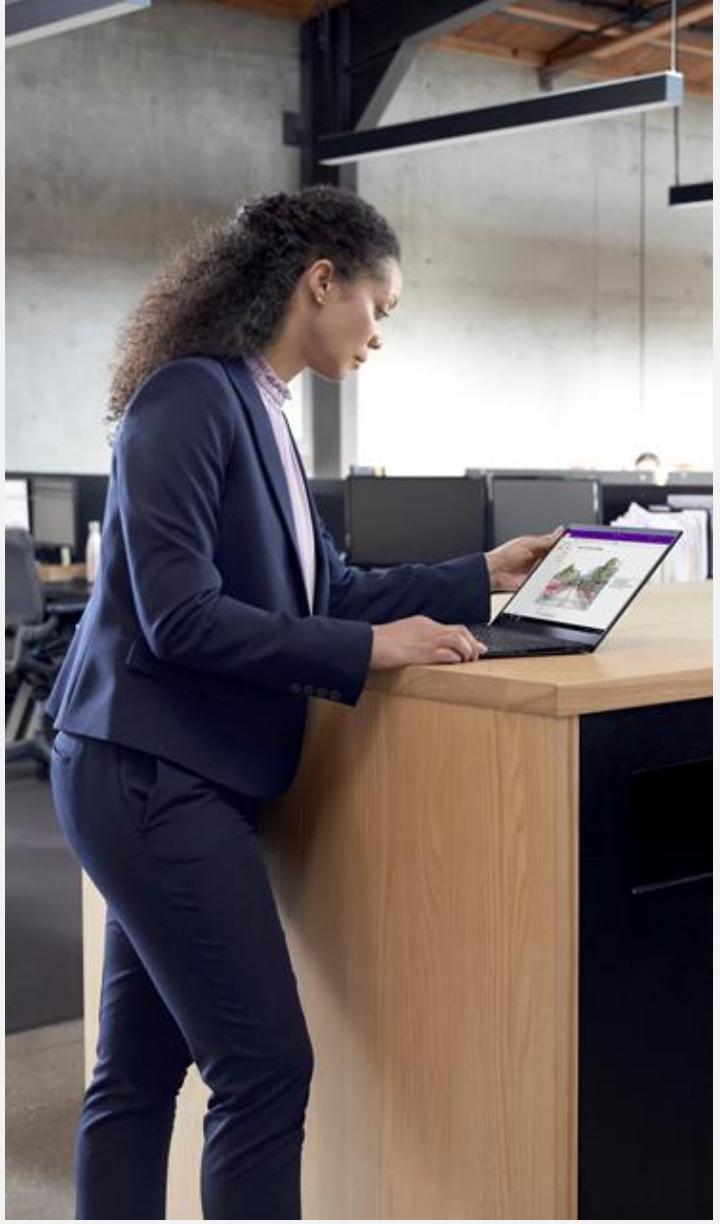


CI and CD

Continuous Integration – my stuff works with everyone else's

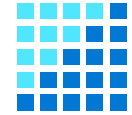
Continuous Delivery – My pipeline gives me a deployable thing

Continuous Deployment – I deploy that thing



Continuous Delivery

- You have a deployable piece of work
- Including infrastructure and dependencies
- Everything you need to deploy



Continuous Deployment

- Actually deploy that piece of work
- Doesn’t have to be to Production
- Trustworthy and reproducible

Always have Continuous Deployment to *somewhere*.
Don't assume this version will deploy as cleanly as the last.

Protip

GitHub Actions

CI/CD with GitHub Actions

GitHub Actions

Automation for any software workflow

Dozens of events that can trigger workflows

Continuous Integration and Continuous Deployment

Protecting Production

We might not want every change to go to Production

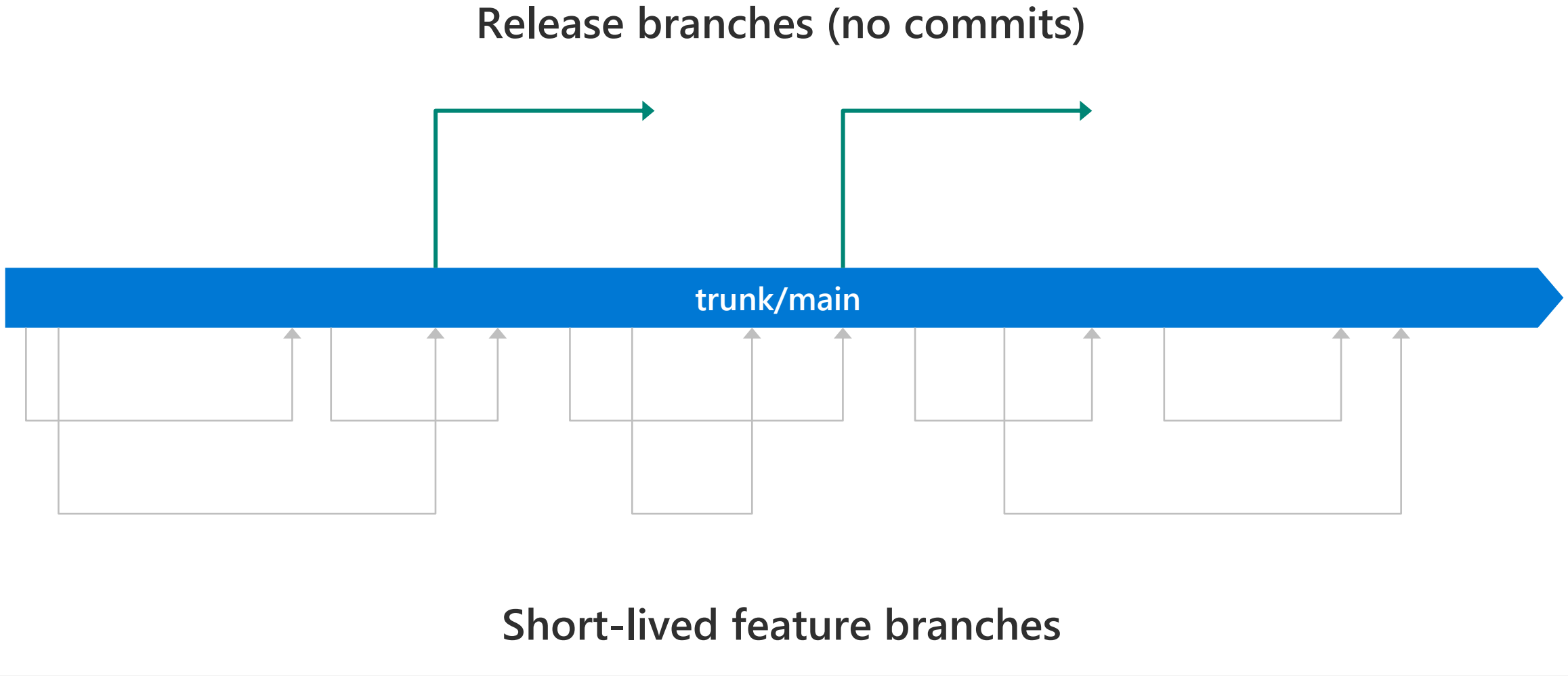
Pull Request Workflows

Workflow triggers on PR

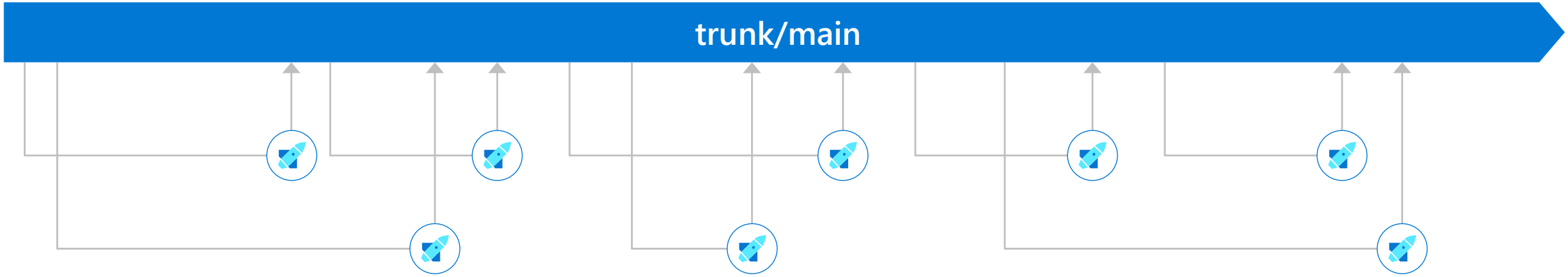
Build, test, deploy

Checks before merging to main branch

Trunk-based development

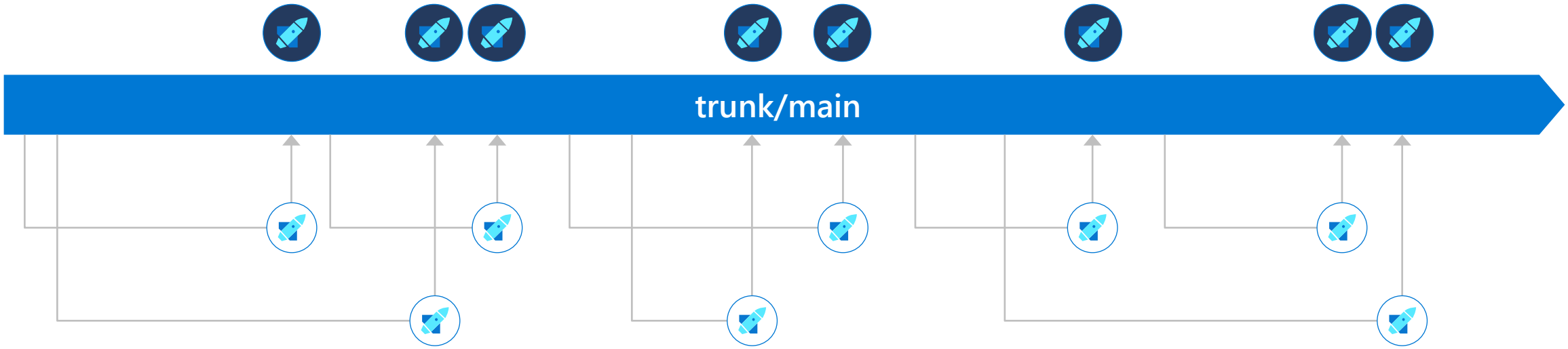


Trunk-based development



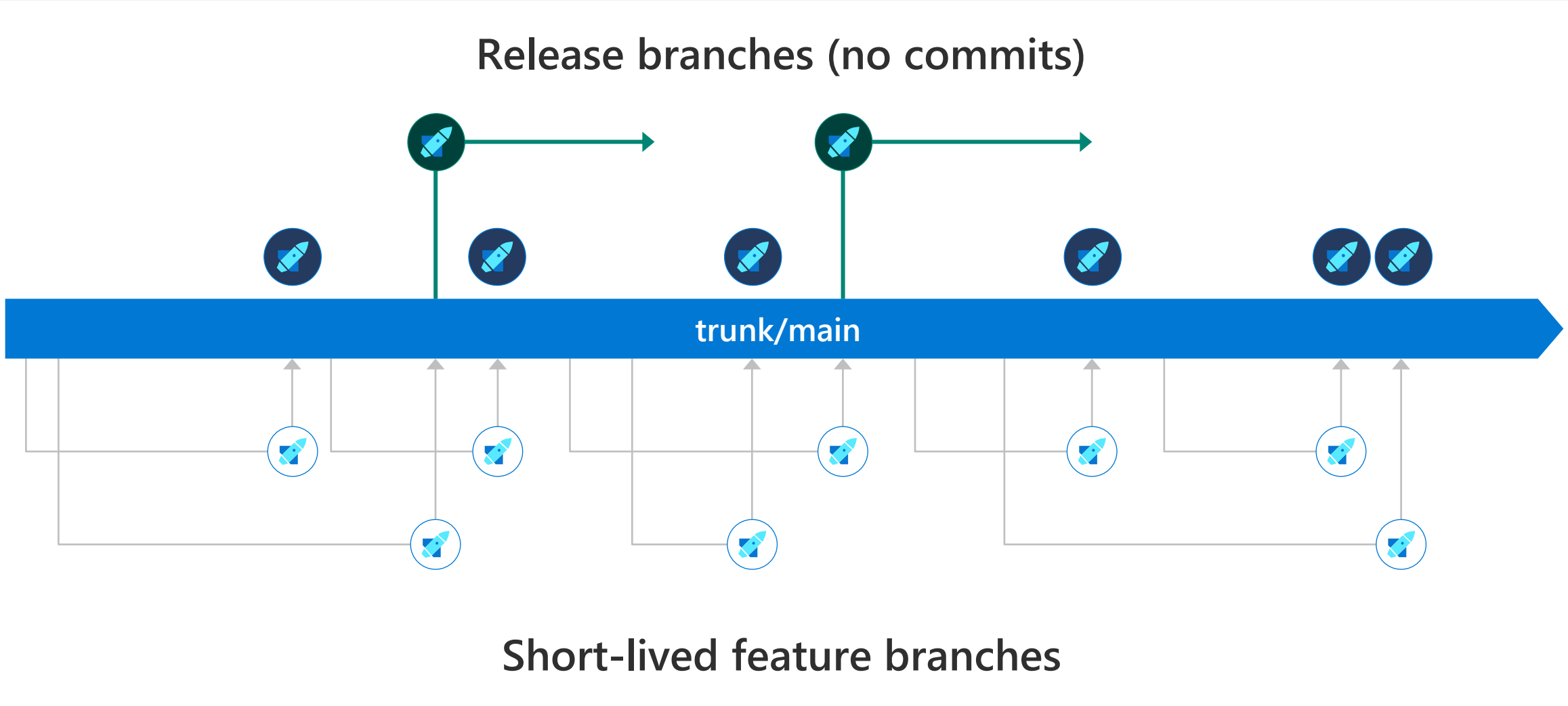
Short-lived feature branches

Trunk-based development



Short-lived feature branches

Trunk-based development



ChatOps

GitHub Actions

Azure App Service

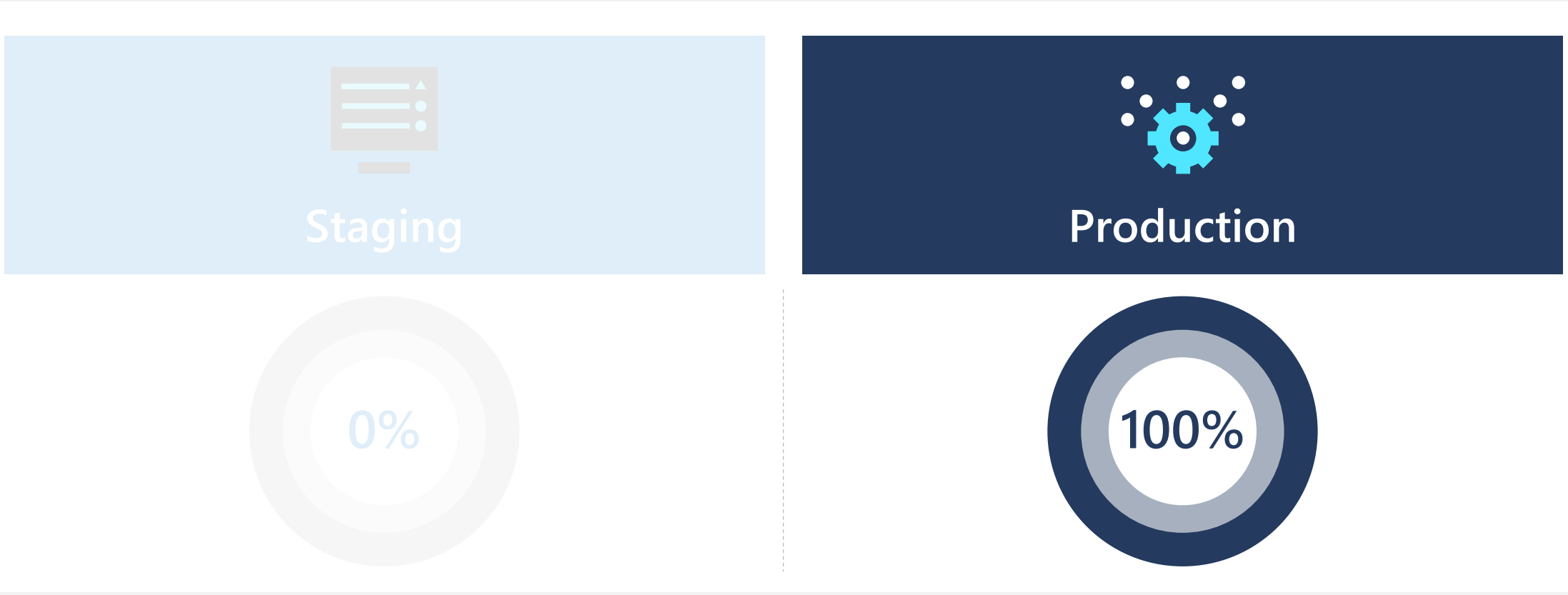
Microsoft Teams

Deployment Slots

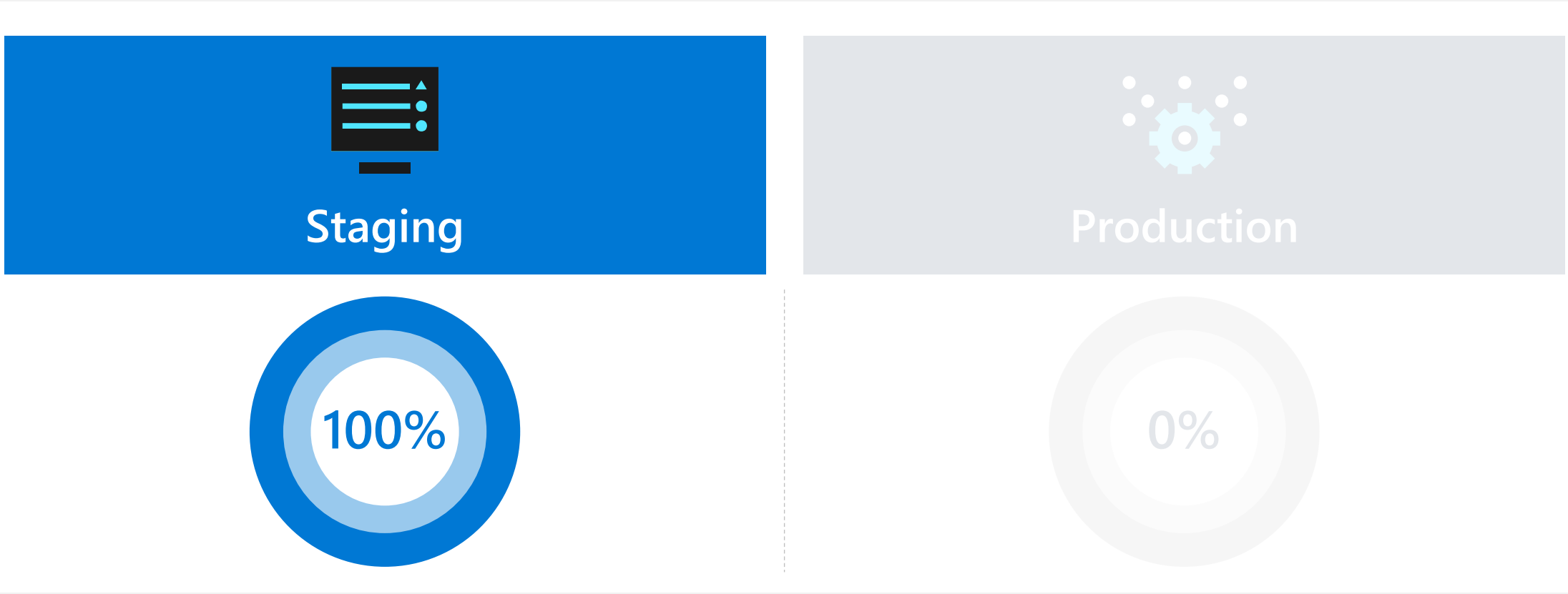
Staging

Production

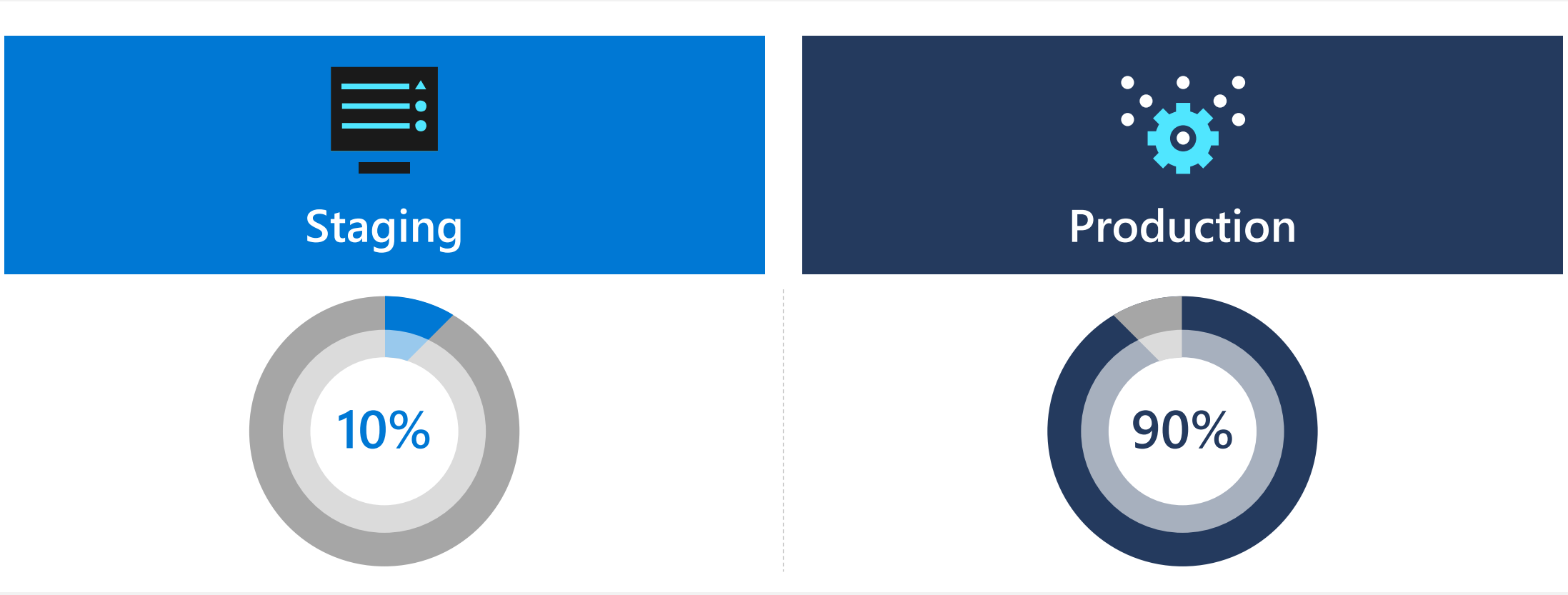
Deployment Slots



Deployment Slots



Deployment Slots



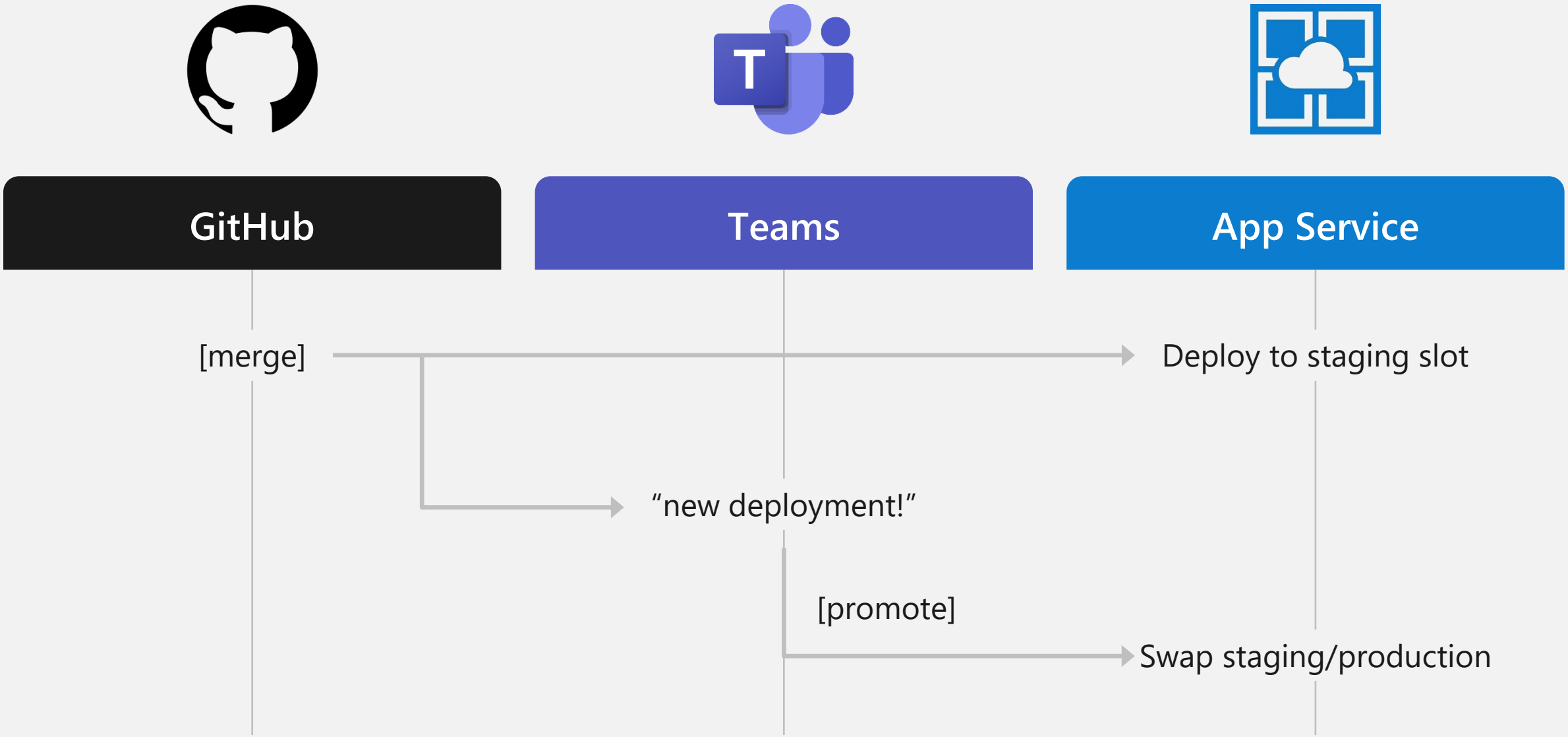
Microsoft Teams

A hub for team collaboration

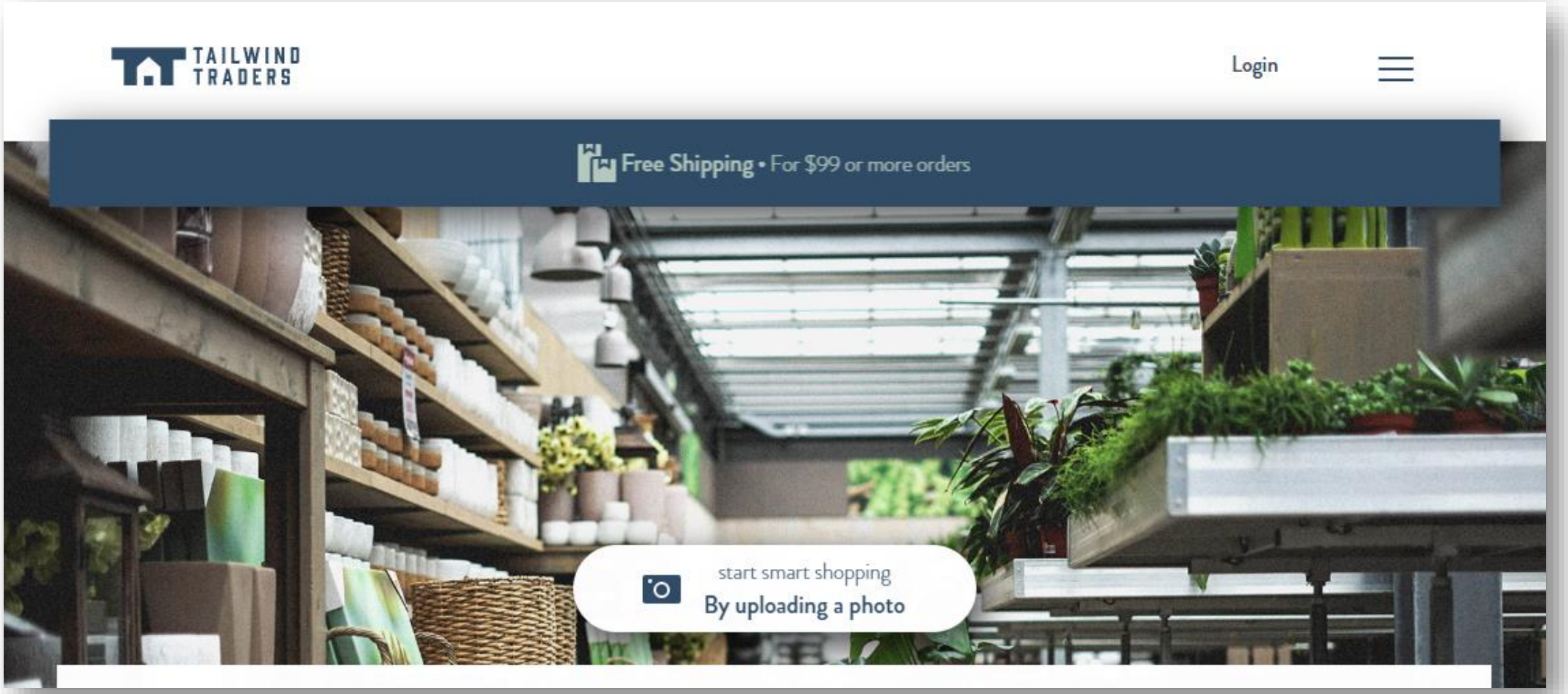
Webhooks and Connectors

Adaptive cards

ChatOps with Teams



Tailwind Traders



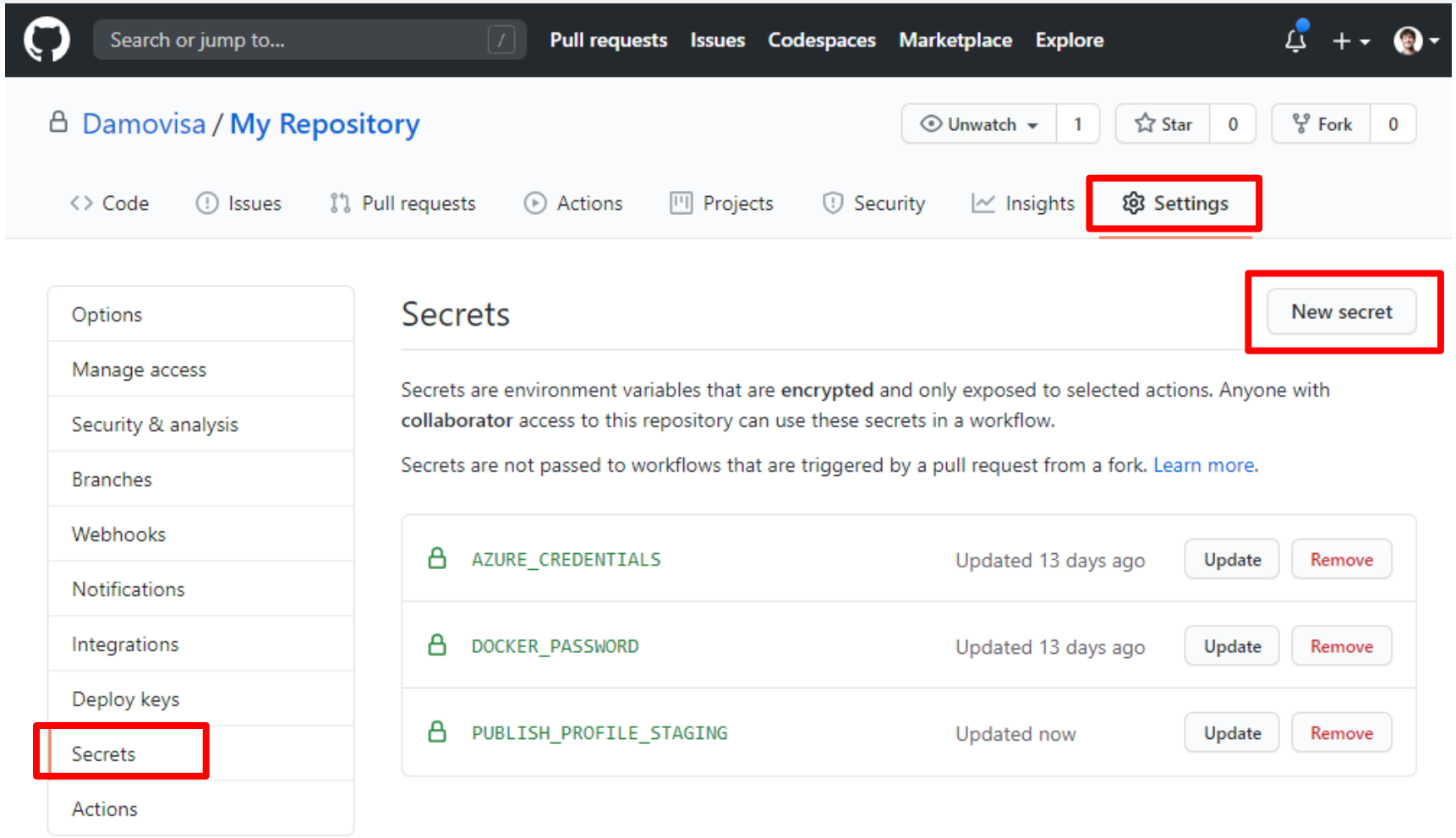
Handling Keys and Credentials

Keeping secrets secret

GitHub Secrets

```yaml
- name: Deploy to Website
  uses: azure/webapps-deploy@v2
  with:
    app-name: ${{ env.AZURE_WEBAPP_NAME }}
    publish-profile: ${{ secrets.PUBLISH_PROFILE_STAGING }}
    package: './Source/Tailwind.Traders.Web/staging'
```

GitHub Secrets



Azure Key Vault

Keys

Secrets

Certificates

Azure Key Vault

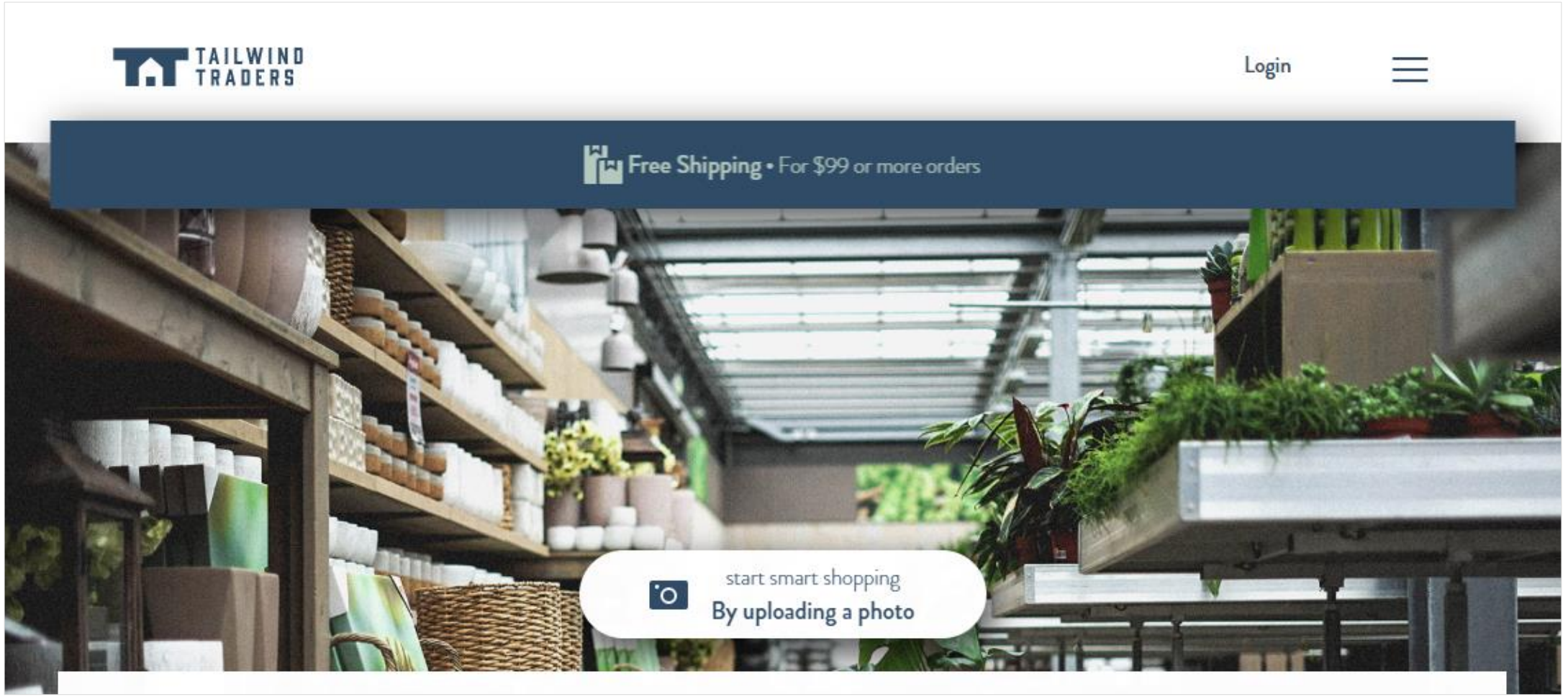
```yaml
steps:
  - uses: actions/checkout@v2

  - uses: Azure/login@v1
    with:
      creds: ${{ secrets.AZURE_CREDENTIALS  }}

  - uses: Azure/get-keyvault-secrets@v1.0
    with:
      keyvault: "TailwindTraders-ADO40-KV"
      secrets: 'DockerPassword'
    id: kvSecretAction

  - uses: Azure/docker-login@v1
    with:
      login-server: tailwindtradersado40.azurecr.io
      username: tailwindtradersado40
      password: ${{ steps.kvSecretAction.outputs.DockerPassword }}
```

Tailwind Traders



Future Ideas for Tailwind Traders

Rotate credentials in Key Vault when an admin asks a Teams Bot

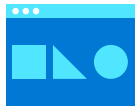
Automatically build a new dev environment and fork a repository based on a properly-formatted issue

Pull commit messages since last production release and build release notes for customers

Summary

Add CD to your pipeline!

Continuously deploy *somewhere*



Protect production with ChatOps

Centralize Secrets Storage

Microsoft

Operating Software In the Cloud

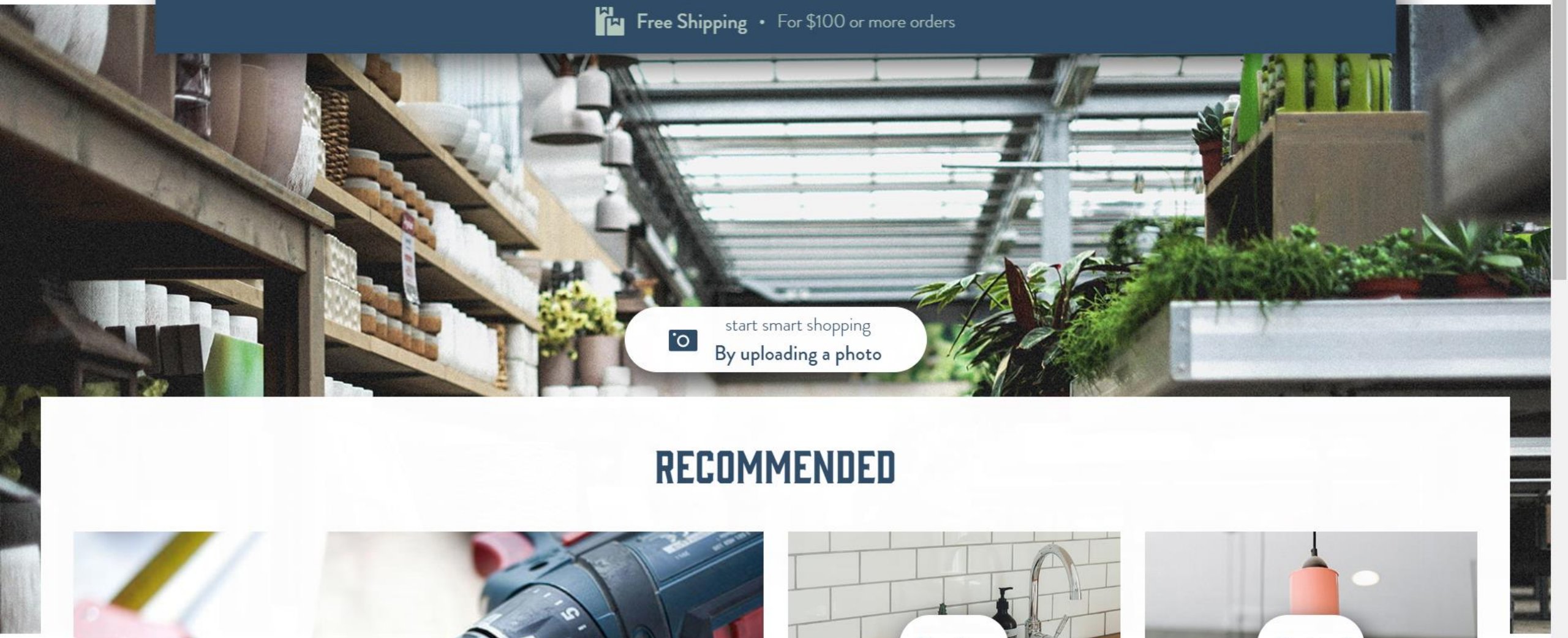
Microsoft

Welcome to the Tailwind Team

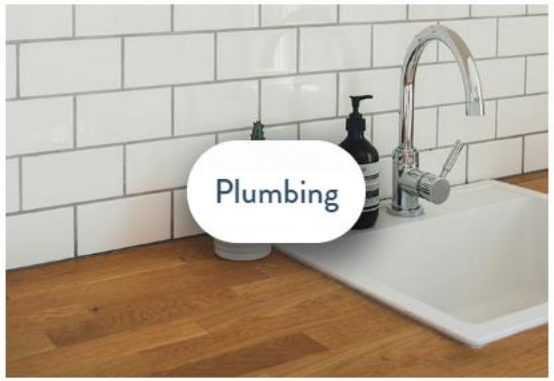
TAILWIND TRADERS

HOME APPLIANCES | SINK | HOME | GARDENING | DECOR | KITCHEN ACCESSORIES | DIY TOOLS | Login

Free Shipping • For $100 or more orders



RECOMMENDED



Agenda

Responsible Incident Response

If everyone is responsible for incident response, no one is.

No Magic People or Machines

Secrets, passwords, and authentication should have limited dependencies on specific humans.

Tooling over Tasks

Let machines do repetitive tasks while your humans build the tools to solve the problems.

Via Jeffrey Snover in 2009

Technical Fellow and Creator of PowerShell

Big message:
In a lousy economy, NOTHING is more important than automation.
Productivity == career security

Microsoft

What is DevOps?

DevOps Accelerates Delivery

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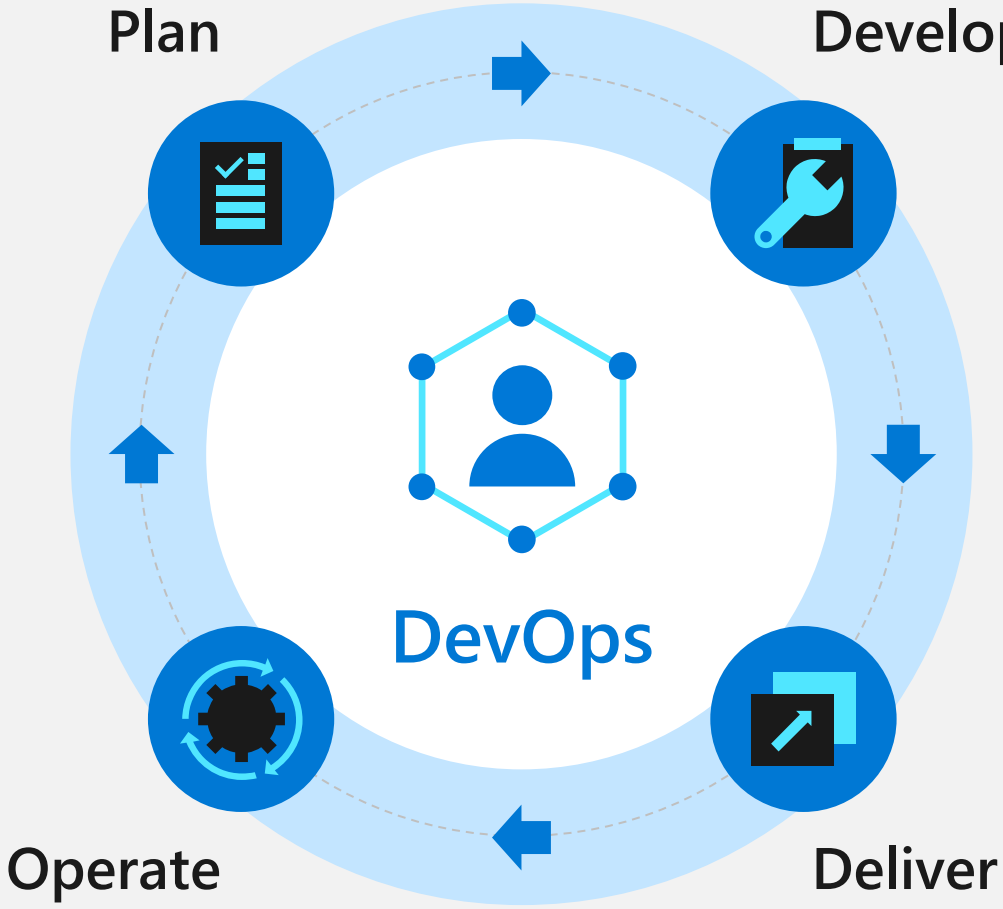
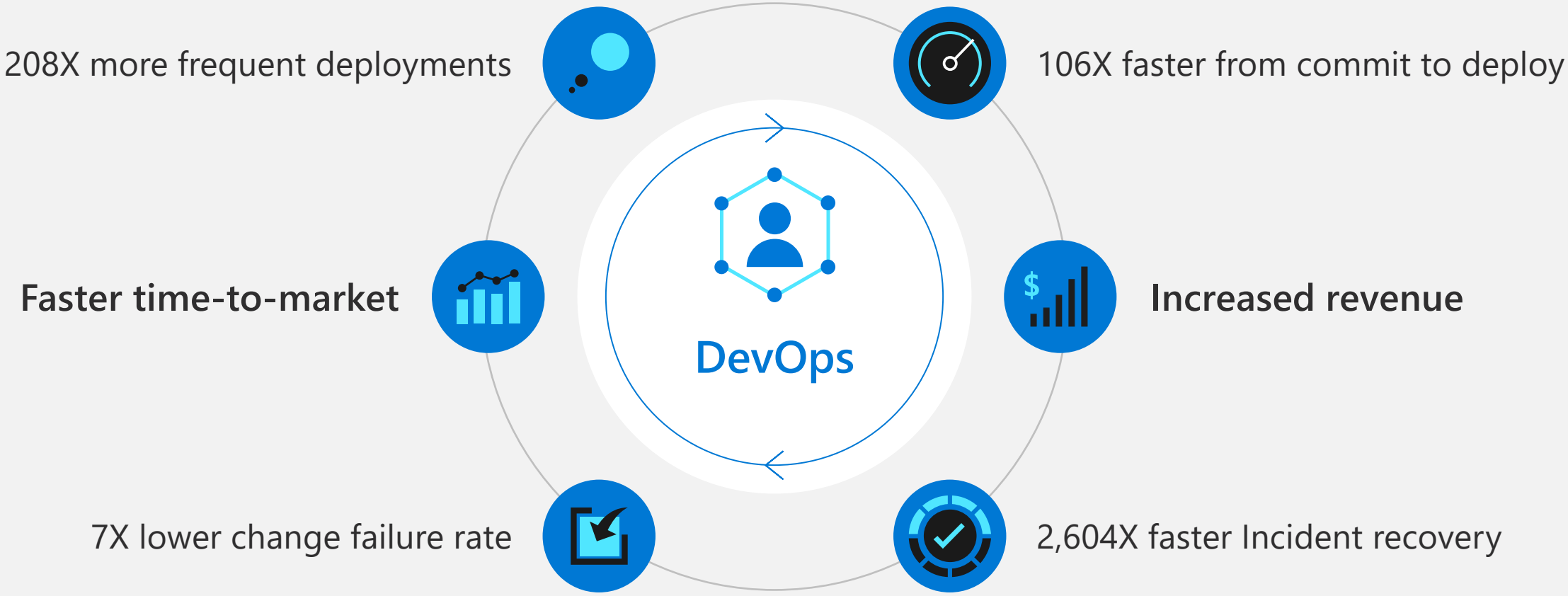


High performance DevOps Companies Achieve Developer Velocity by …



Source: 2019 DORA

People

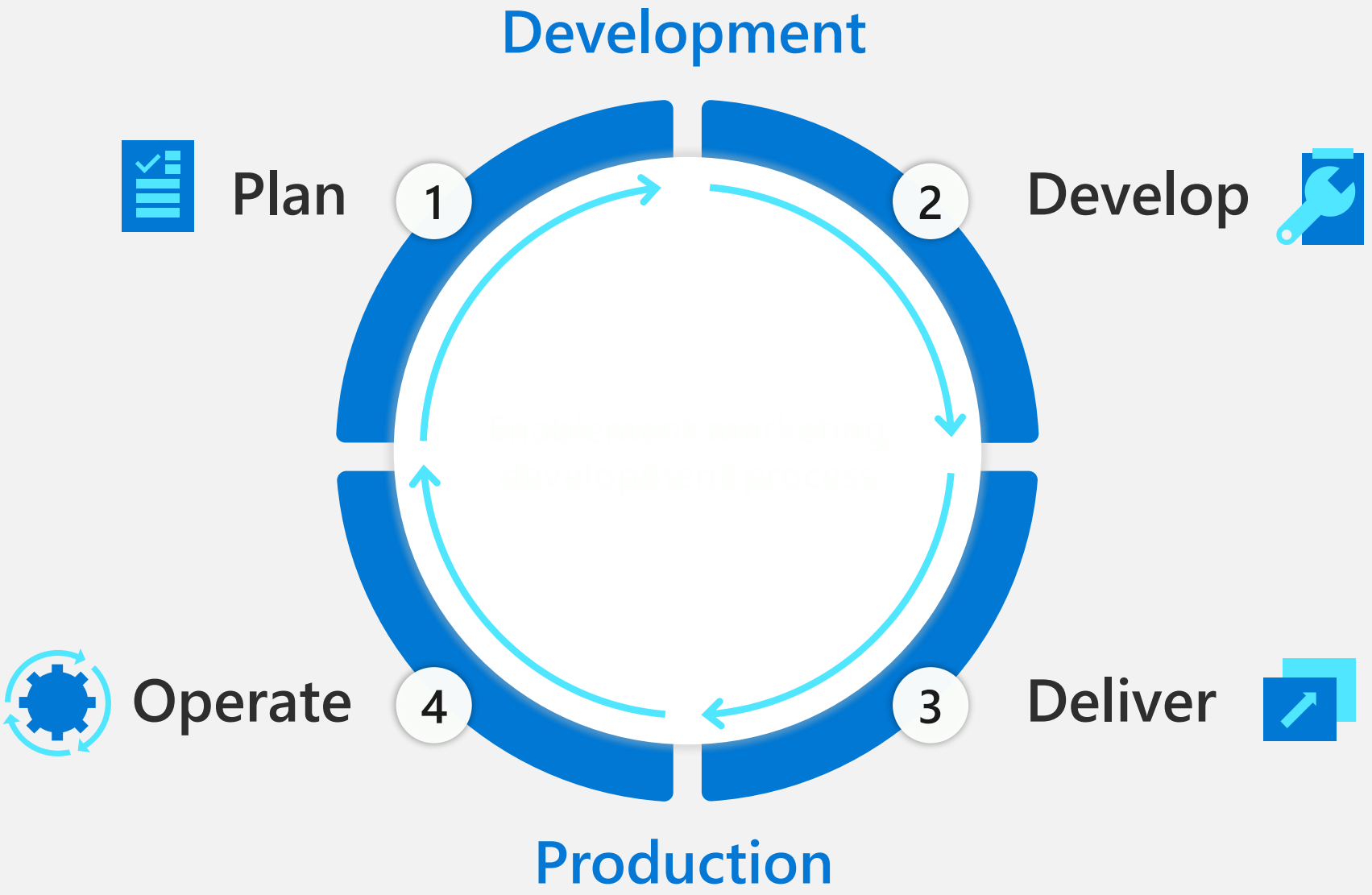
DEV

WALL OF CONFUSION

OPS

=

Process


Development
Plan
1
2
Develop
Operate
4
3
Deliver
Production

Microsoft

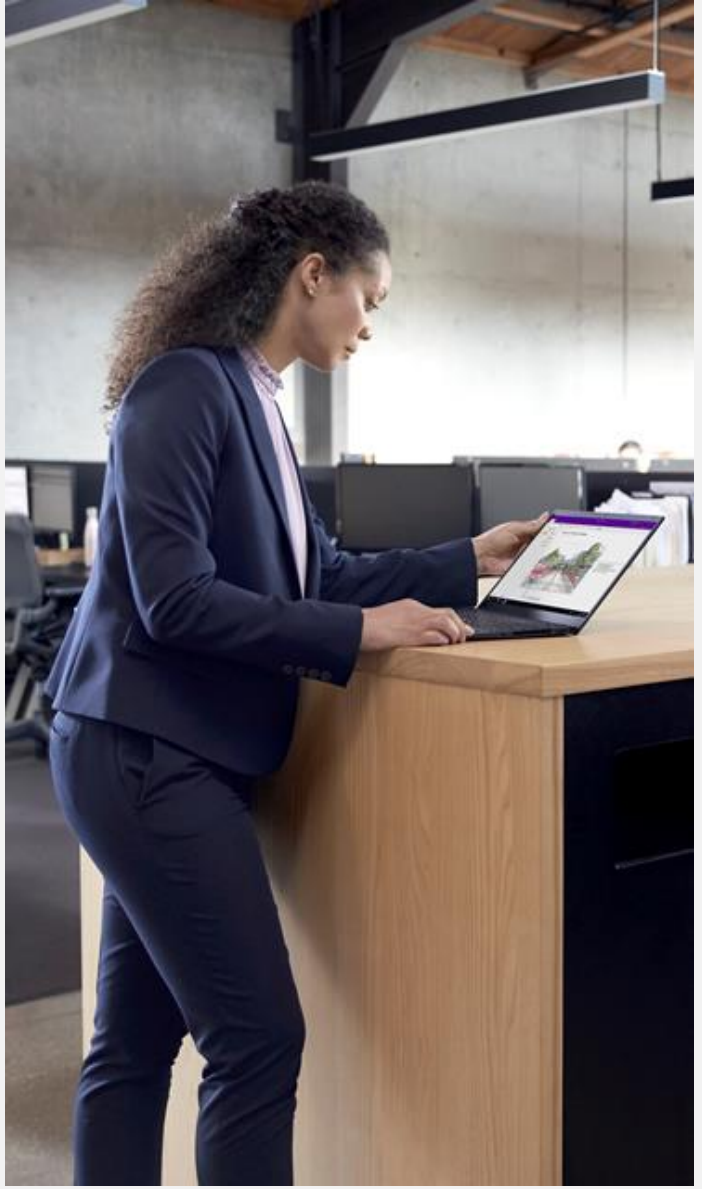
Responsible Incident Response

Disaster Strikes!

Our website is down!

Email notifications went out...

And time goes by...



Incident Response

Incident Notifications are not:

- Broadly distributed
- Informational only
- Heartbeat or logging

Incident Response

Incident Notifications are:

- Specifically directed
- Actionable
- In need of human intervention

Establishing a Basic Designated Responsible Individual Rotation

- Create an DRI Schedule using Shifts in Microsoft Teams
- Create a Logic App to Notify the Correct DRI
- Update the Alert Action to Target the Logic App

Demo

Creating a Basic DRI Notification

Microsoft

No Magic People or Machines

Identifying the Problem

A previous engineer recently left for a new role

Several components of the application infrastructure had access control tied to that account

This led to cascading failures across the environment

Identity in Azure

Identity authentication over keys

Managed identities and service principals over user principals

Put keys and other secrets in key store

Demo

Assigning a Managed Identity

Microsoft

Tooling over Tasks

Via Jeffrey Snover in 2010

Technical Fellow and Creator of PowerShell

Can't see the value of automation?!! At some point it's an IQ test.

Reducing Manual Intervention in Production

- Move manual, repetitive tasks to automation
- Minimize long term user principal role assignments
- Use a central secret store

Demo

Using Logic Apps and Microsoft Teams to Create Flexible Automation

Microsoft

Review

Review

Responsible Incident Response

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