Automation Engineering Platforms

Building in process and tooling efficiencies

Agenda

- About Me
- About Us
- Why and the ‘Role’
- Problems:
  - ES Rally
  - Component load testing
- Demo
  - Canary failure
  - Canary Success
- The duck-tape
- Conclusion / summary

Defining our ‘Why’

- App’s to prod faster
- Reduced maintenance
- Reduce risk
- Manageable + scalable
- Consistency
- Accountability

Role : The tale of 2 sides

Feature work

- App support (Toolkit)
- Logging/Metrics
  - Prometheus
  - Rules engine
- Service mesh (Istio)
- IAC
  - Terraform
  - Helm
- Containers (AKS)

Framework / solutions

- Component load testing
- PACT
- DaaS
- Chaos engineering (Monkey)
- API automation
- Functional checks
- Event driven automation

The Challenges

- ES Upgrade
- Load testing

“The challenge of the unknown future is so much more exciting than the stories of the accomplished past.”

- Simon Sinek

Problem: ElasticSearch Upgrade

- Version upgrade 2.4 -> 5.6
- New indexes
- Document structure changes
- Perf testing was done through the frontend

My Lists Catalogue Recipes Discover

banana

Your order $0

Meat, Seafood & Deli Bakery Dairy, Eggs & Fridge Pantry & Beauty Household

banana

banana fresh

banana bread

bananas.fresh

banana frozen

Search for a list of items

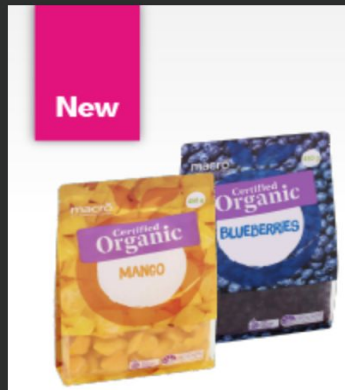
Showing Results F

Filter your search

79 Products

Sort by: Relevance

Cavendish Bananas each



Banana Organic each

Woolworths Banana Bread Slice

100g

$1.60

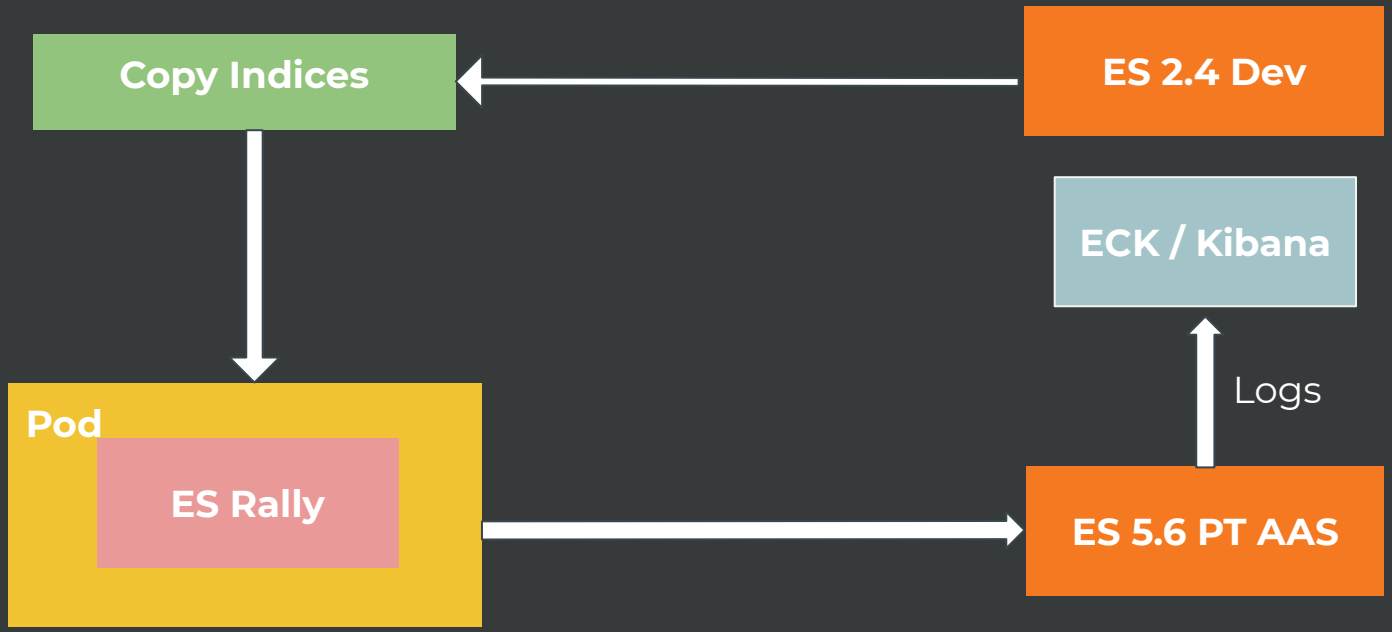
$1.60 / 100G

Add to cart

Solution: ES Rally

- Get relevant indices and ingest these
- Able to run locally and in the build pipeline
- Build and execute relevant queries
- Tool to be containerised
- Results published and viewable in dashboard

The Baseline and load tests



Summary

- Good introduction to team culture and process
- Experiments with docker
- Vendor engagement with Elastic
- * Exp with building/supporting tools for other teams
-
- Undefined goals and expectations
- No K8s

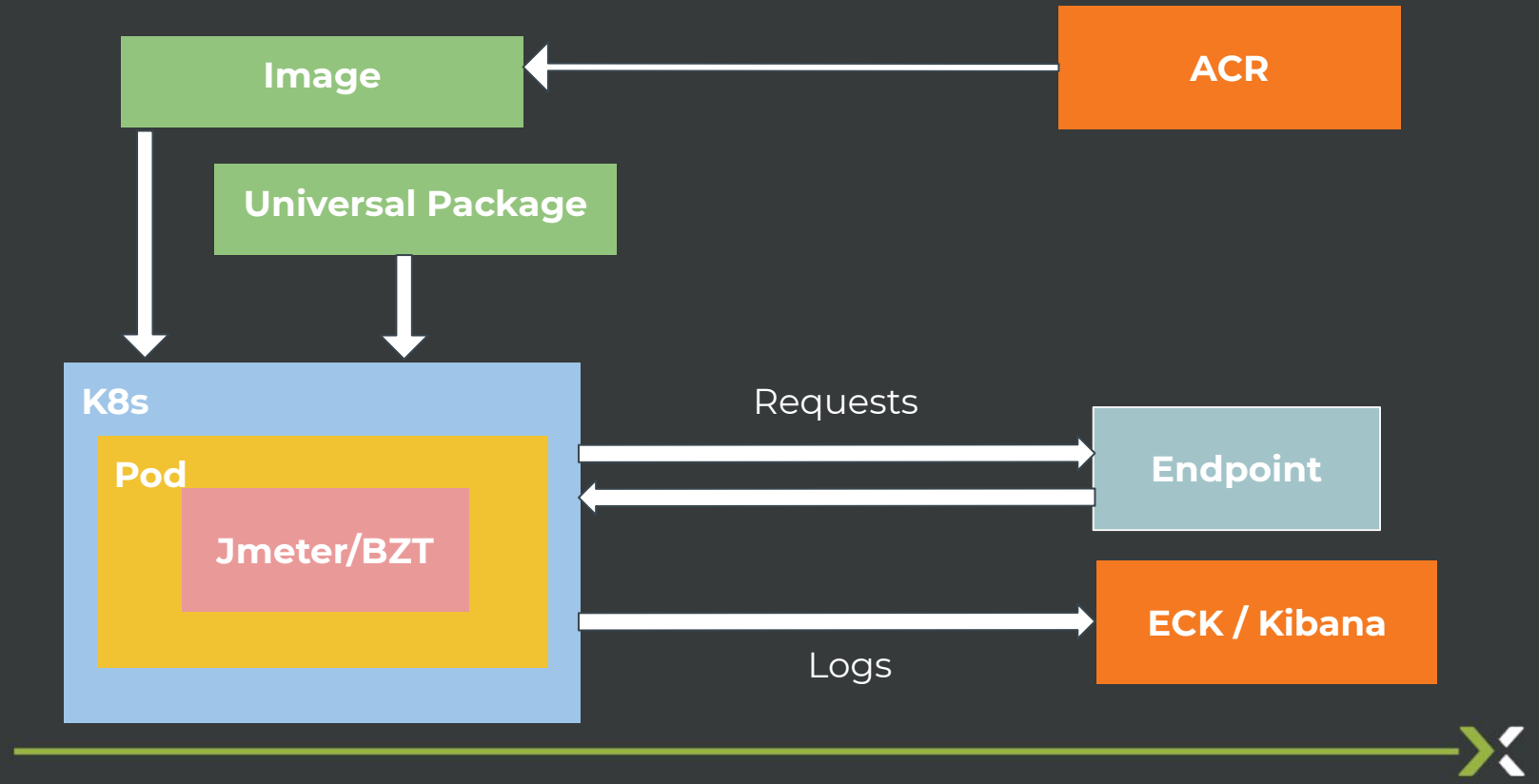
Problem 2: Component load testing

- Perf Testing was at the end of the Dev process
- Lack of transparency
- Lack of accountability
- Expensive process

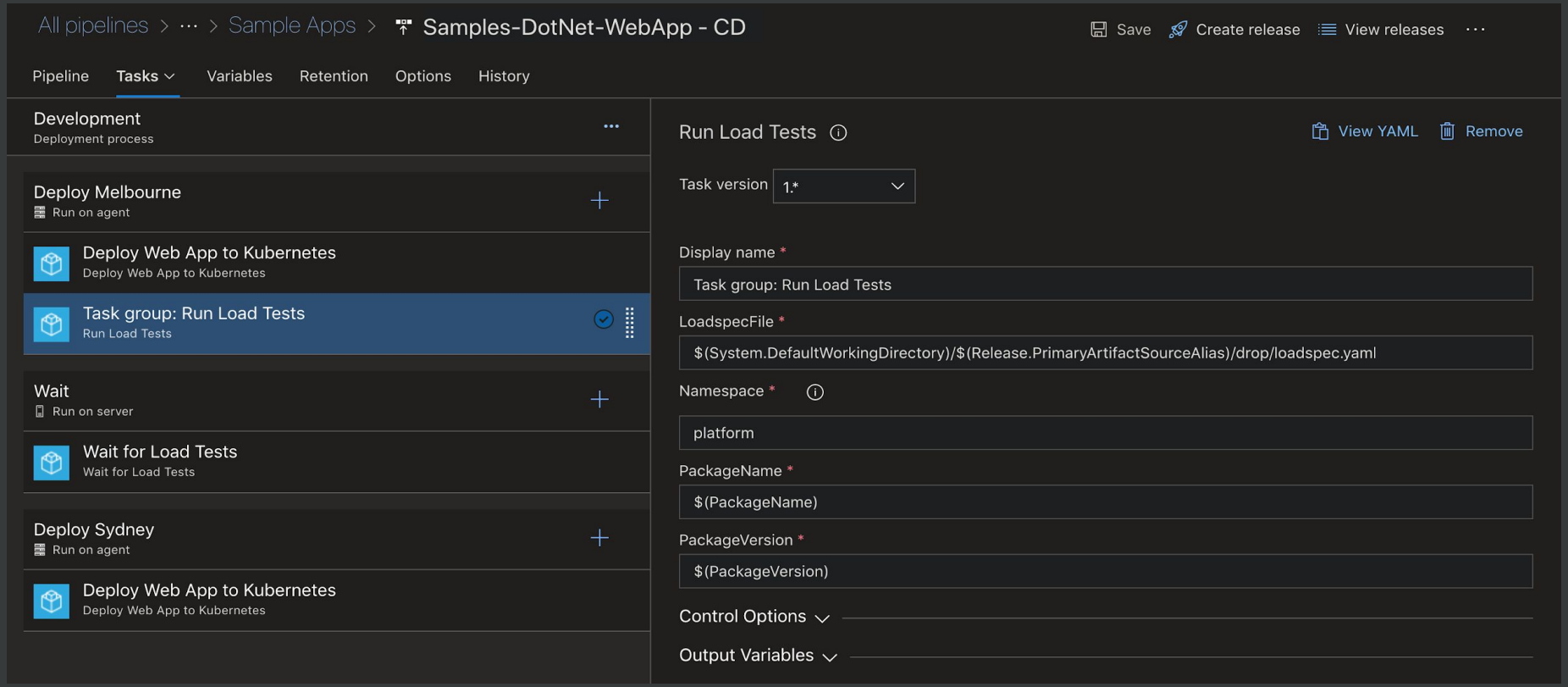
Component based load test framework

- Run locally and at each CD stage
- Uses docker and K8s
- Use of Helm templates (run as a job)
- Includes reporting , metrics and alerting
- Defined goals and expectations
- Out of the box solution

Local Load-tests



Azure DevOps



Helm

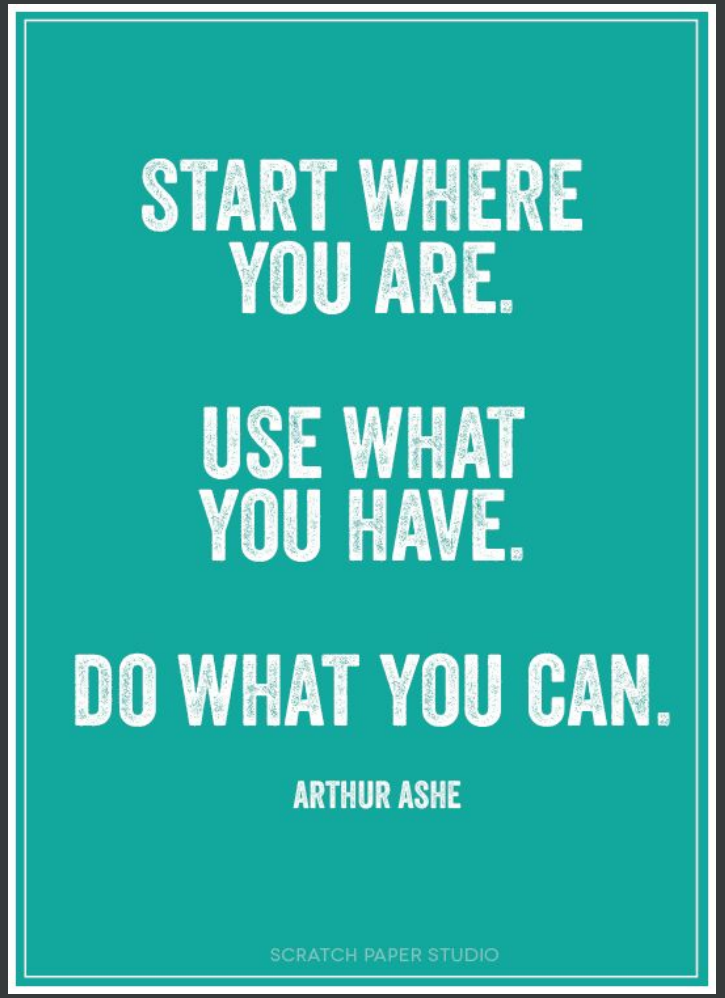
- A package manager : Homebrew, APT, Chocolatey
- Simplified deployment and testing
- Yaml config (chart + templates)
- Release naming+versioning

Universal packages

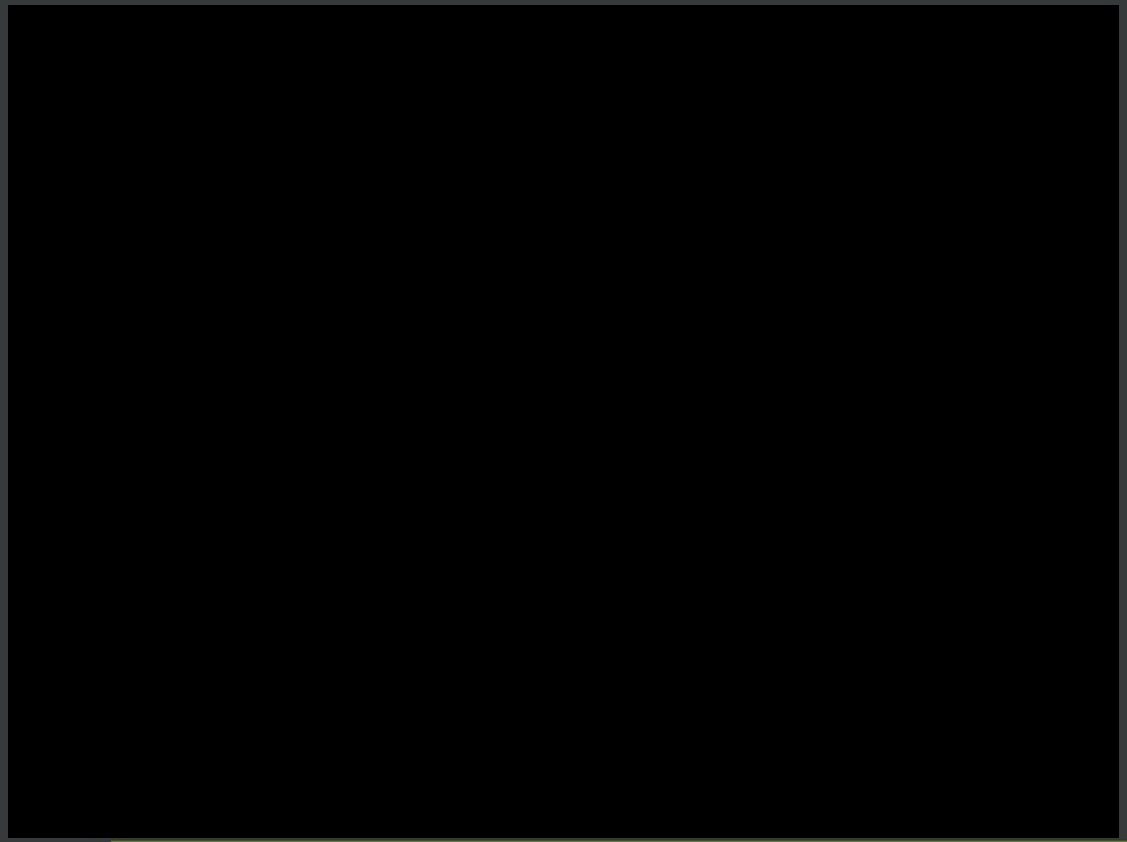
A named / versioned collection of files

- Configuration files/scripts and templates (e.g. ARM templates)
- Database snapshots for integration testing
- Machine learning training data and models
- Developer tools and SDKs
- 3D models and textures
- Uses the VSTS / az artifacts CLI

Demo


START WHERE
YOU ARE.
USE WHAT
YOU HAVE.
DO WHAT YOU CAN.
ARTHUR ASHE
SCRATCH PAPER STUDIO

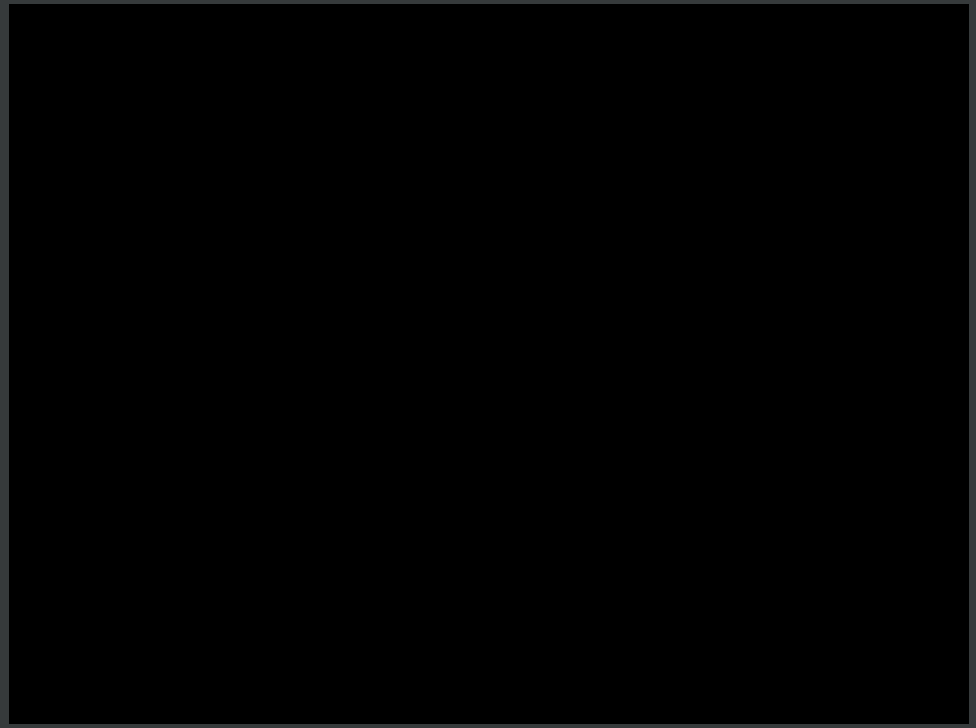
Reject Canary



- Deploy the app to UAT and run the load/functional tests
- Poll the webapp and load test pods
- Review the docker entrypoint
- Look at the config.yaml
- Cancel the Canary

Accept Canary

- Build to UAT
- Trigger a Proceed
- New version gets pushed out
- Canary cleaned up

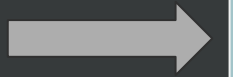


Stitching it all together

“Everything is created twice, first in the mind and then in reality.”
— **Robin Sharma**

Platforms

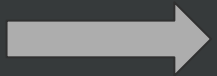
Images / K8s
Plugins
Task Groups
Helm Templates
Libraries



Solutions | Frameworks | Testing / Process

QE / Evangelists

Scripts
Configuration
Data



Web | Mobile | Fulfilment

Review

- We defined our ‘why’ early on
- We built the solutions then applied partial support
- Detailed wiki and readme’s helped
- We used tools available and being analysed by the team
- We started with real world issues
- Using a ‘core’ team for designing and building tools internally has its benefits

Thankyou

References:

Helm on AKS: https://bit.ly/2HhyWZz

ECK: https://bit.ly/2zdDqvG

ESRally: https://github.com/elastic/rally

Blazemeter: https://www.blazemeter.com/

Istio and flagger: https://github.com/weaveworks/flagger

Universal packages: https://bit.ly/2TNCBUc