Modernization 101: A Beginner's Guide to Application Modernization and Methodology

Shawn Hurley & Savitha Raghunathan

Introduction

Application Modernization

Rehosting

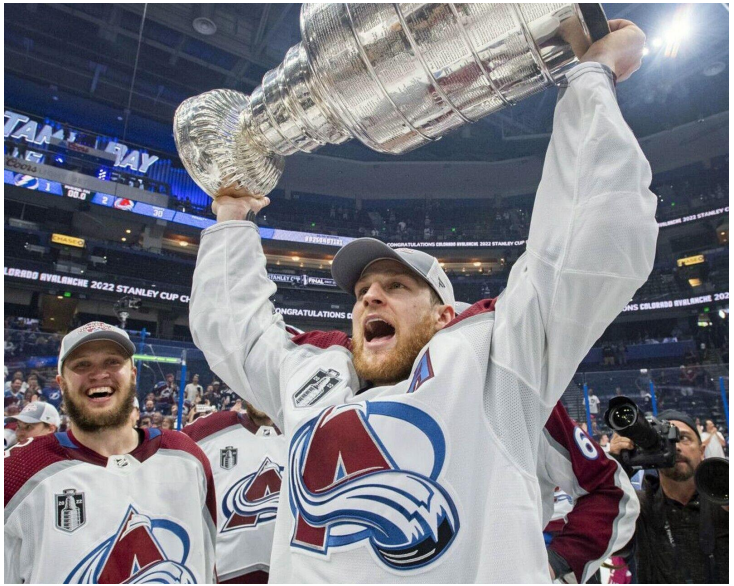
Replatforming

Refactoring

Konveyor AI

Introduction

- Shawn Hurley
  - Principal Software Engineer @ Red Hat
  - Likes to play roller hockey and root for his favorite team the Avalanche!



KONVEYOR

Introduction

- Savitha Raghunathan
  - Senior Software Engineer @ Red Hat
  - Maintainer - Konveyor
  - Likes to paint and crochet in free time

KONVEYOR

Introduction

Application Modernization

Rehosting

Replatforming

Refactoring

Konveyor AI

Application Modernization

- Process of upgrading legacy/old applications to improve software delivery performance
- Why?
  - Reduced Tech debt
  - Cost savings
  - Enhanced security
  - Many more benefits

KONVEYOR

7 R's Strategy

Pic courtesy: https://community.aws/content/2cKbgI3WsAYTiDM0J48uEMVqOVW/understanding-the-7-rs

KONVEYOR

Konveyor

A community of **people** passionate about **helping others modernize** and migrate their **applications** to Kubernetes by **building tools and best practices** on how to **accelerate the journey to Kubernetes**

KONVEYOR

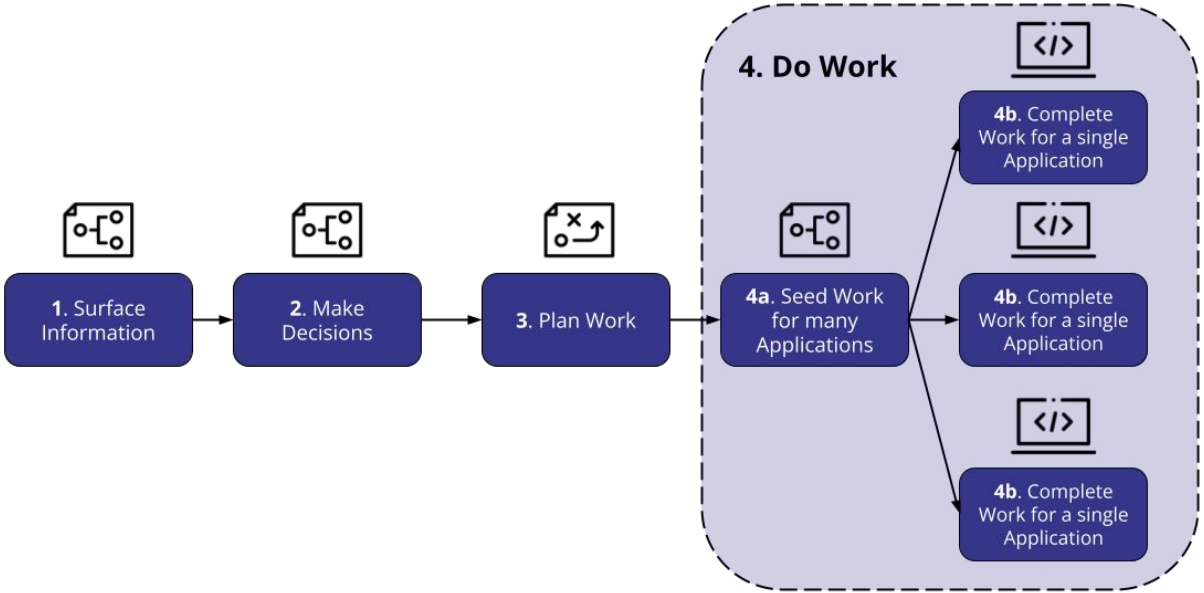
Methodology & Personas

Stages and personas in the Konveyor Workflow

Architect: Stakeholder who understands the business value of the modernization effort and makes the ultimate decision of what should be done.

Project Manager: Stakeholder in charge of planning the work required for the modernization initiative and measuring its progress as it gets executed.

Migrator: Developer responsible for making the specific source code changes to accomplish the modernization need



Introduction

Application Modernization

Rehosting

Replatforming

Refactoring

Konveyor AI

Rehosting

- Lift and Shift approach
  - Moving from Windows machines on premise to Cloud based Windows machines
  - Moving Virtual Machines to KubeVirt in Kubernetes
- Reasons
  - Cost of modernization is too high
  - Can not modernize the application (purchased software)
- Pros
  - Less time consuming and costly
- Cons
  - Pushes the problem down the road

Introduction

Application Modernization

Rehosting

Replatforming

Refactoring

Konveyor AI

Demo 1

- Replatform Java Application to Kubernetes
  - Show konveyor results for Java application
  - Run Java app on minikube cluster, and see the issue being reported
  - Update the deployment to fix the issue
  - What else do we need to do?

KONVEYOR

Introduction

Application Modernization

Rehosting

Replatforming

Refactoring

Konveyor AI

Refactoring

- Sometimes you want to change the code, to modernize the approach. Sometimes this looks like moving to a new framework, updating to a new version of the language.
  - .NetFramework to .Net core
  - JavaEE/JakartaEE to Quarkus

- This is where our AI Tooling can help!

KONVEYOR

Introduction

Application Modernization

Rehosting

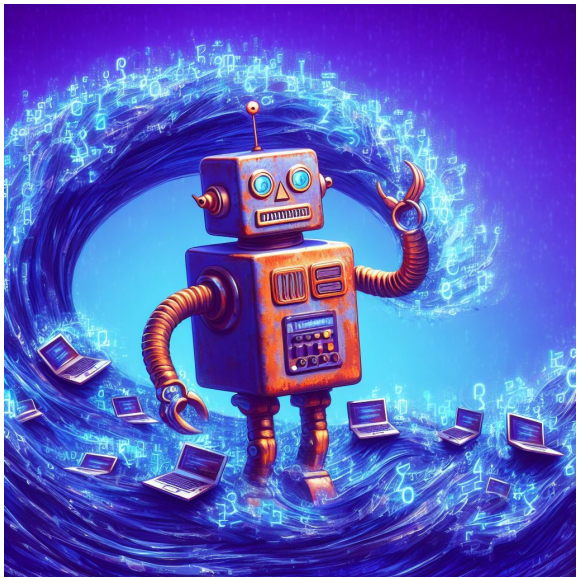
Replatforming

Refactoring

Konveyor AI

Konveyor AI (Kai)

Generative AI to automate source code changes between technologies



- Uses data in Konveyor to generate code suggestions
- Crafts a tailored LLM prompt based on:
  - Knowledge of specific problems that need to be addressed
  - Knowledge of prior successful code changes
- Provides suggested code changes via IDE plugin

KONVEYOR

Demo 2

- Refactor your Application using kai
  - JavaEE to Quarkus
  - We will see the app now running on Kubernetes!

Quicklinks

- Contact and more information: https://konveyor.io
- Our source code: github.com/konveyor
- Open community, experience sharing, join us!

“The ultimate Open Source toolkit to help organizations safely migrate and modernize their application portfolio to leverage Kubernetes and Cloud-Native technologies, providing differential value on each stage of the adoption process”

KONVEYOR

Questions?

Thank You! :) :)