

Admiral Bash's Island Adventure with Phippy and Friends

By Simon Forster, John Forman,
Robert Glenn and Danielle Cook

Adopting cloud native technologies is a journey. The **Cartografos Working Group** aims to provide tools to help adopters and end users navigate the Cloud Native Computing Foundation landscape, and the wider cloud native ecosystem.

This book is based on the Cloud Native Maturity Model, developed within the Cartografos Working Group.

We've put this playful short story together, to help those adopting cloud native technologies. We hope you enjoy Admiral Bash's adventure from a sinking mainframe to cloud native nirvana.

Special thanks to: Cheryl Hung, Simon Forster, Danielle Cook, John Forman, Robert Glenn, Nadine Wiese and Charley Mann.



Written by: Simon Forster, John Forman, Robert Glenn and Danielle Cook.

Illustrated by: Nadine Wiese

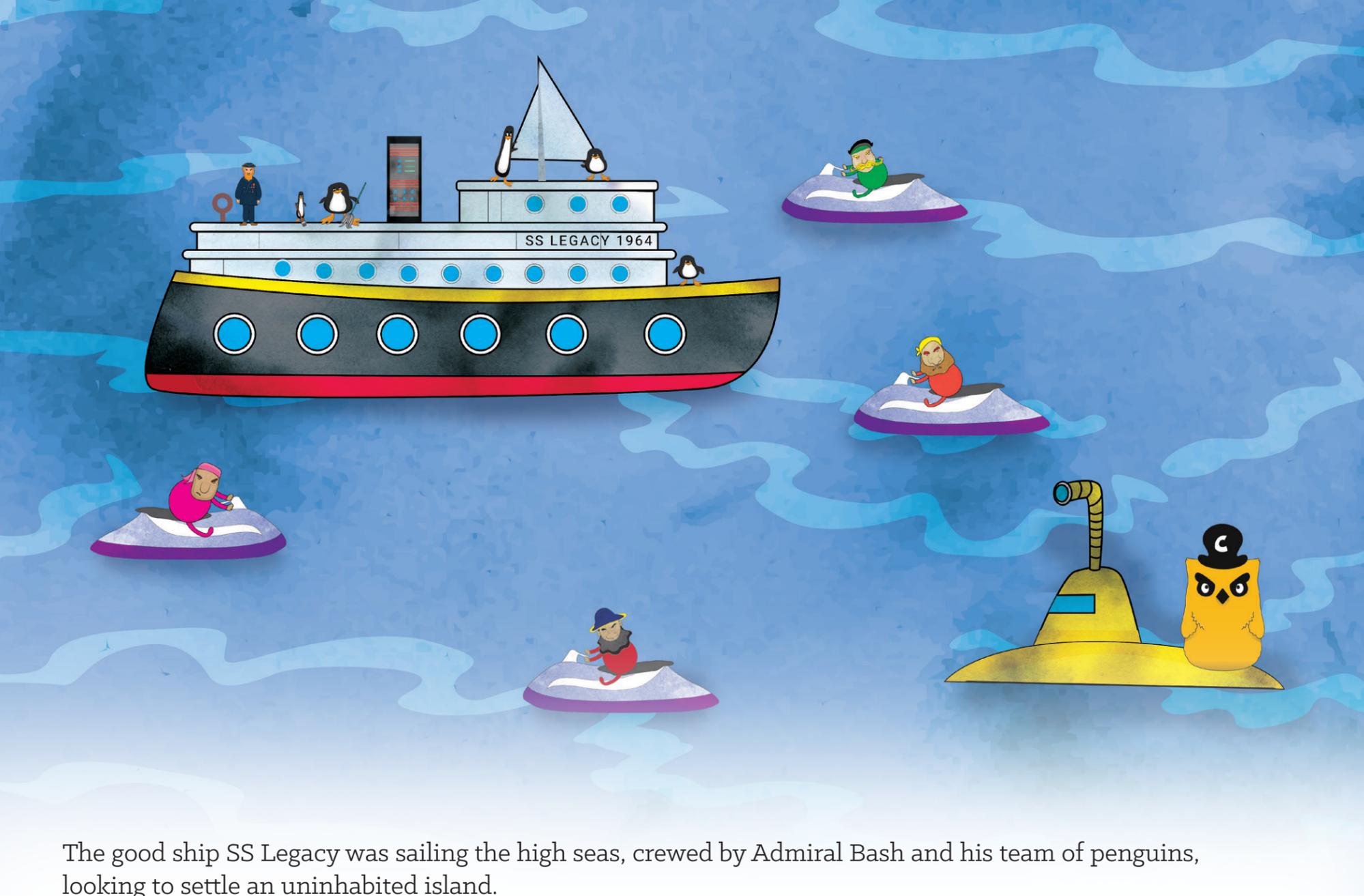
Illustration of Goldie is based on the Go Gopher designed by Renee French

Phippy, Captain Kube, Zee, Linky and Hazel are copyright The Linux Foundation on behalf of the Cloud Native Computing Foundation. They are licensed under Creative Commons Attribution 4.0 International (CC-By-4.0). See phippy.io



Welcome to
our adventure

Admiral Bash's Island Adventure with Phippy and Friends



The good ship SS Legacy was sailing the high seas, crewed by Admiral Bash and his team of penguins, looking to settle an uninhabited island.

Suddenly Admiral Bash came under attack by pirates!

Weighed down by his heavy mainframe, Admiral Bash could not maneuver away from danger.



“To the lifeboats!” shouted Admiral Bash, as the SS Legacy started to take on water.

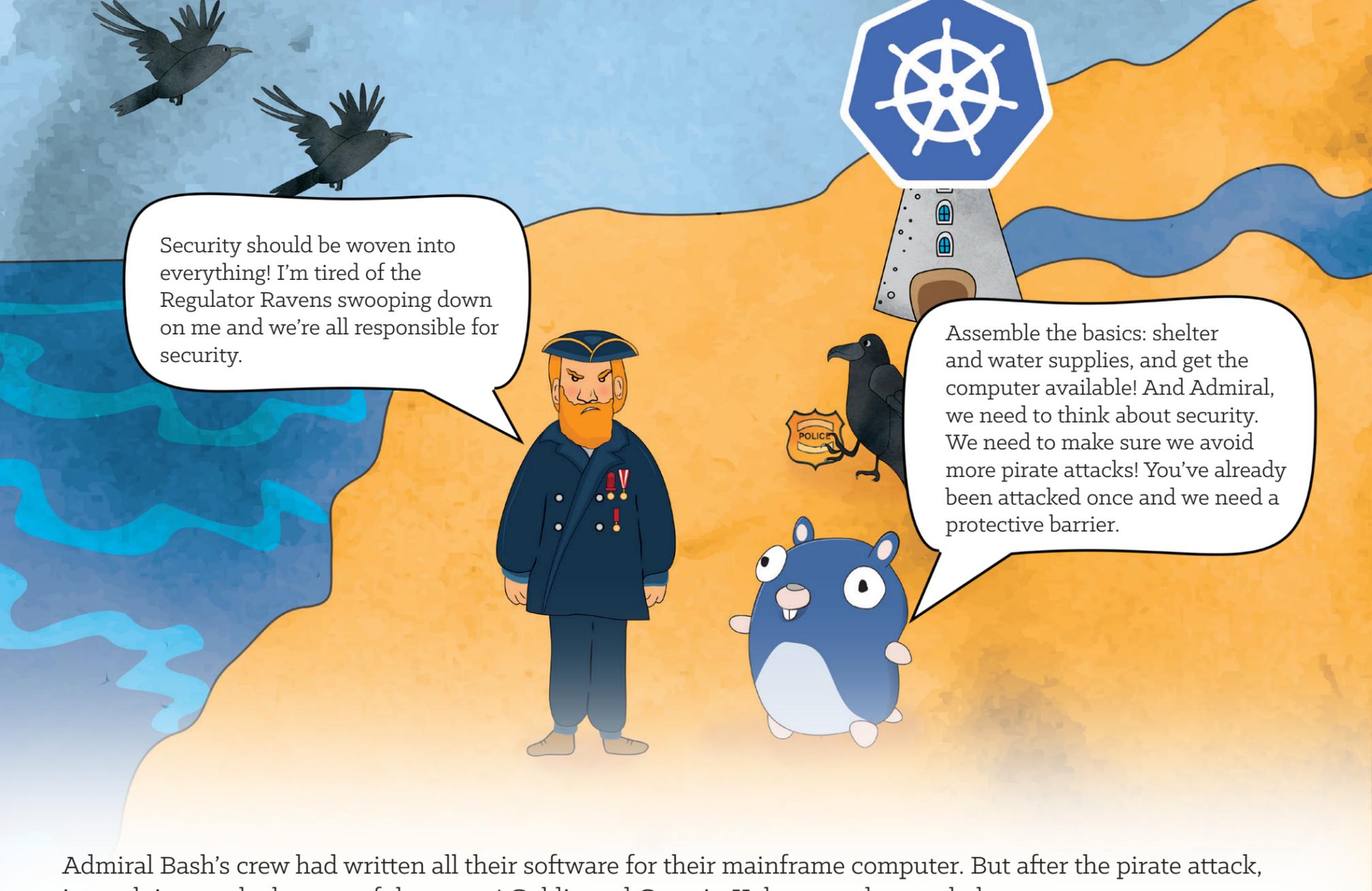
Captain Kube, a fellow explorer, was able to evade the pirates and watched in safety from his submarine. He followed the lifeboats to shore.



After the SS Legacy sunk, Admiral Bash and his crew were washed up on shore, where they were met by Captain Kube and his friends.

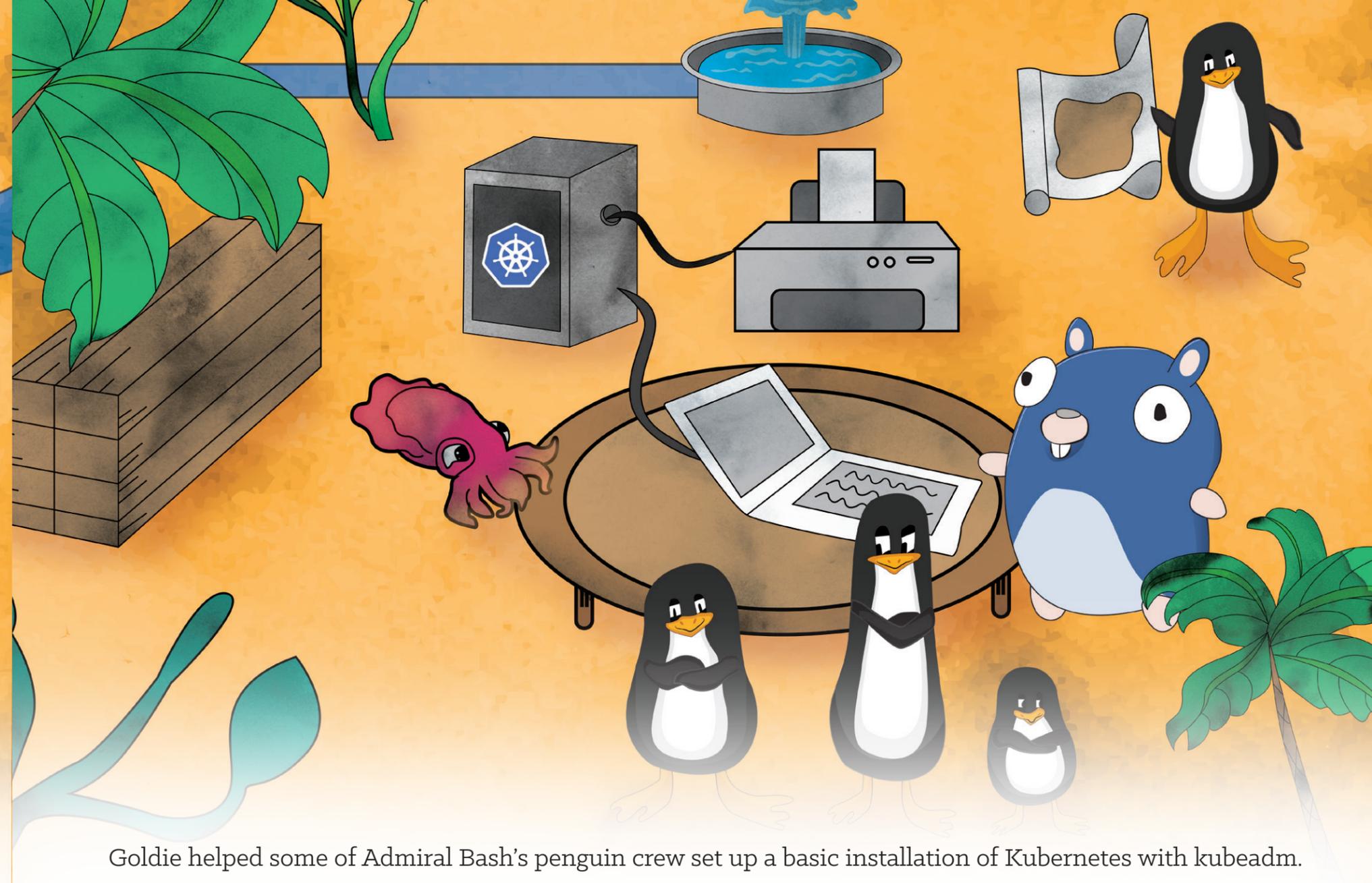


Admiral Bash agreed with Captain Kube, and the team went to work.



Admiral Bash's crew had written all their software for their mainframe computer. But after the pirate attack, it was lying on the bottom of the ocean! Goldie and Captain Kube were there to help.

Goldie knew that the Regulator Ravens used their eagle eyes to keep order, and would wave their police badges if they spotted little gaps in security.



Goldie helped some of Admiral Bash's penguin crew set up a basic installation of Kubernetes with kubeadm.

To get familiar with Kubernetes, the crew deployed a mapping application by hand, with help from a friendly Kube-cuttlefish. The mapping app was small and scaled well, and showed how Kubernetes could help the penguins build the settlement.



Admiral Bash's busy crew got into the swing of things quickly! Goldie taught the development penguins to work with Kubernetes and they took to it like penguins to water. The crew built an application to control the settlement's water supply, and even distribute water to some of the houses.



New island settlers came to help. Beavers and moles joined forces using the penguins' applications to excavate and build a new dam to improve the water supply, getting it to even more homes.

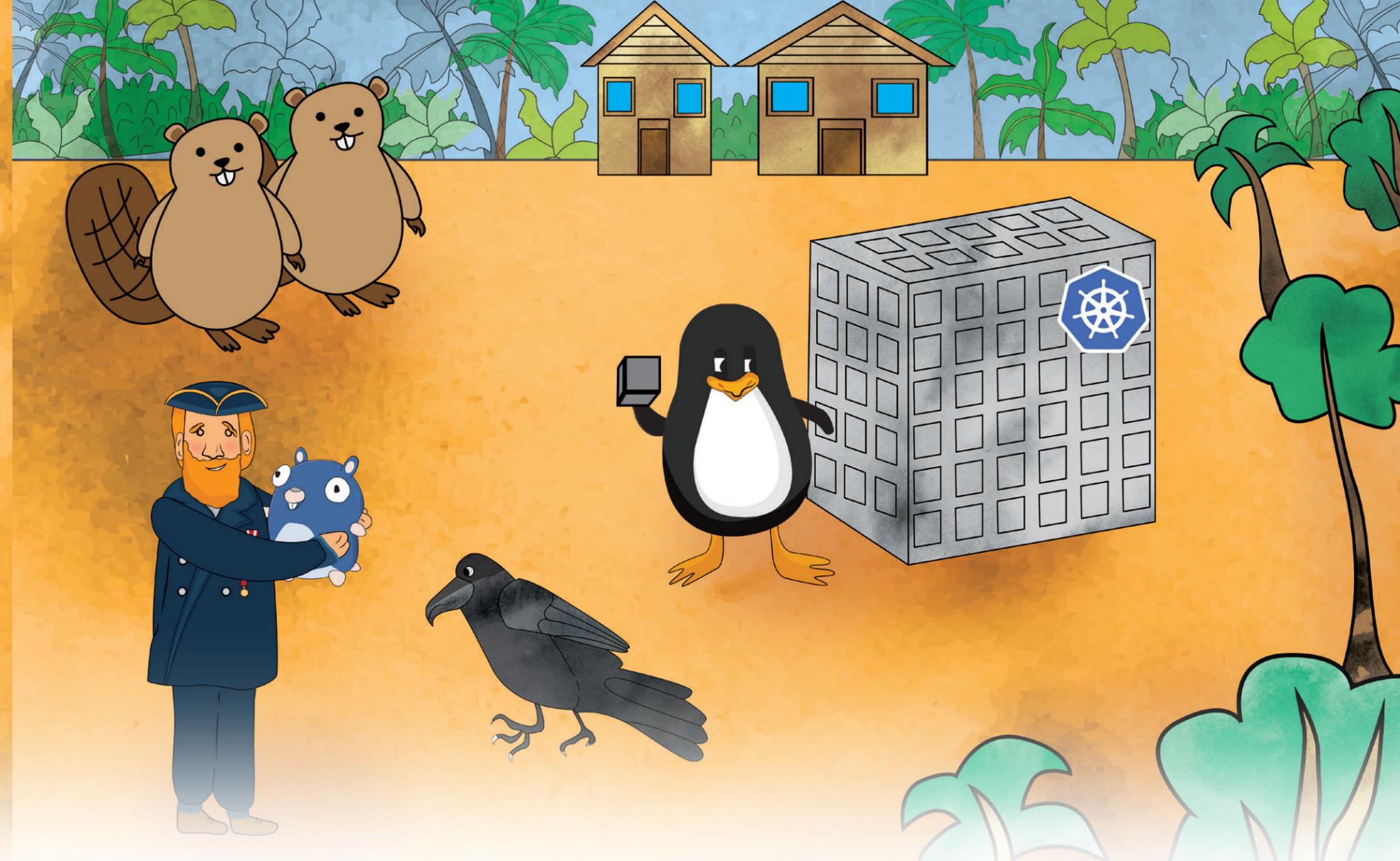
Settling the island was definitely a two-track activity: The beavers and moles were creating its infrastructure, and the penguins were building the applications to support them.

The build was happening so fast that the Regulator Ravens started swooping down on the team. The beavers and moles complained to Admiral Bash that the Regulator Ravens were getting in the way! So Admiral Bash decided to write a set of policies and bylaws to keep everyone on track.



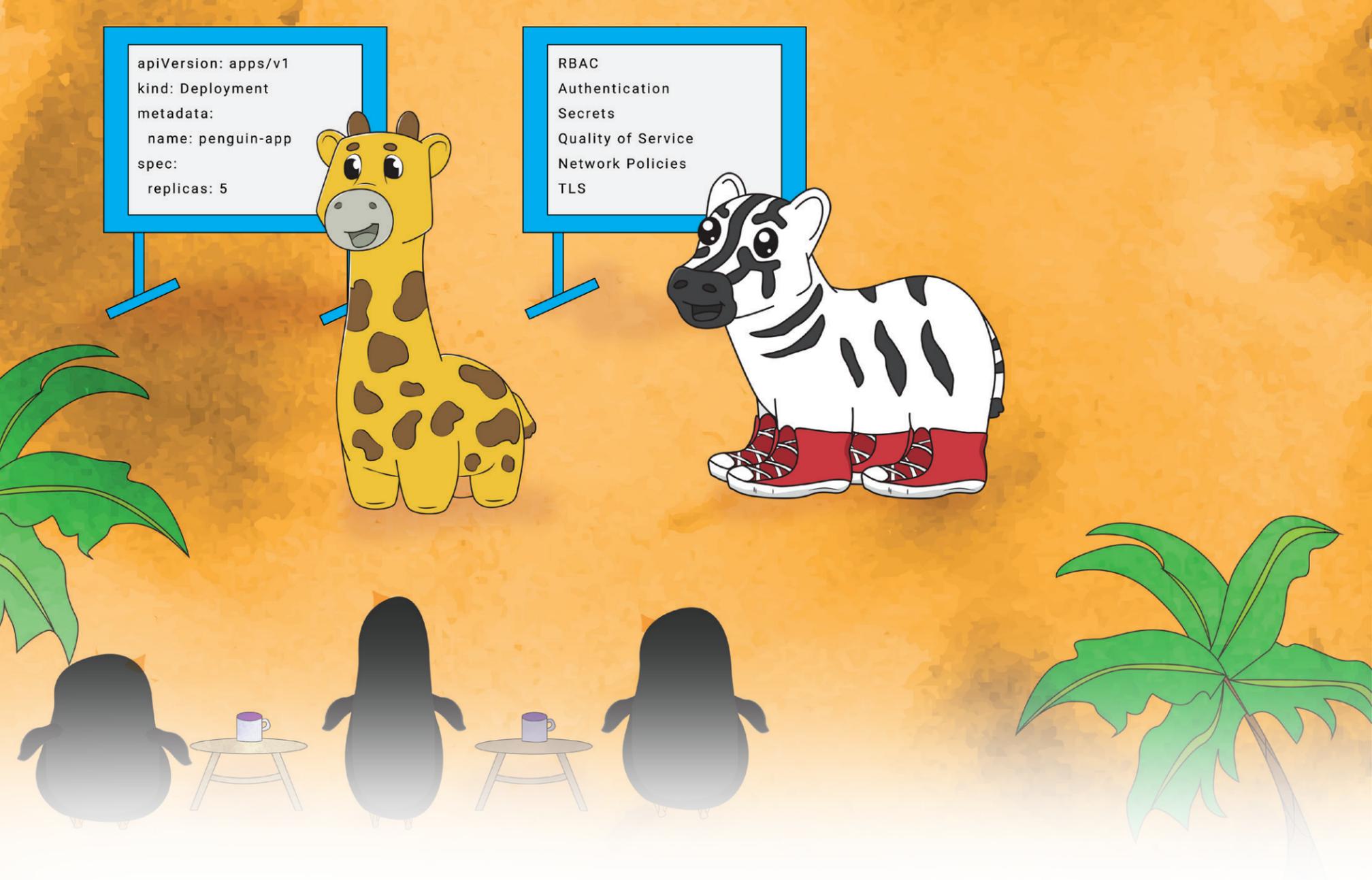
The island settlement was working out brilliantly! It was so successful that the penguins were creating new applications like crazy, as the beavers and moles demanded more and more. With so much going on, Admiral Bash needed a better way to track usage.

So Goldie introduced the penguins to Prometheus, and quickly built a dashboard for Admiral Bash and his crew to monitor.

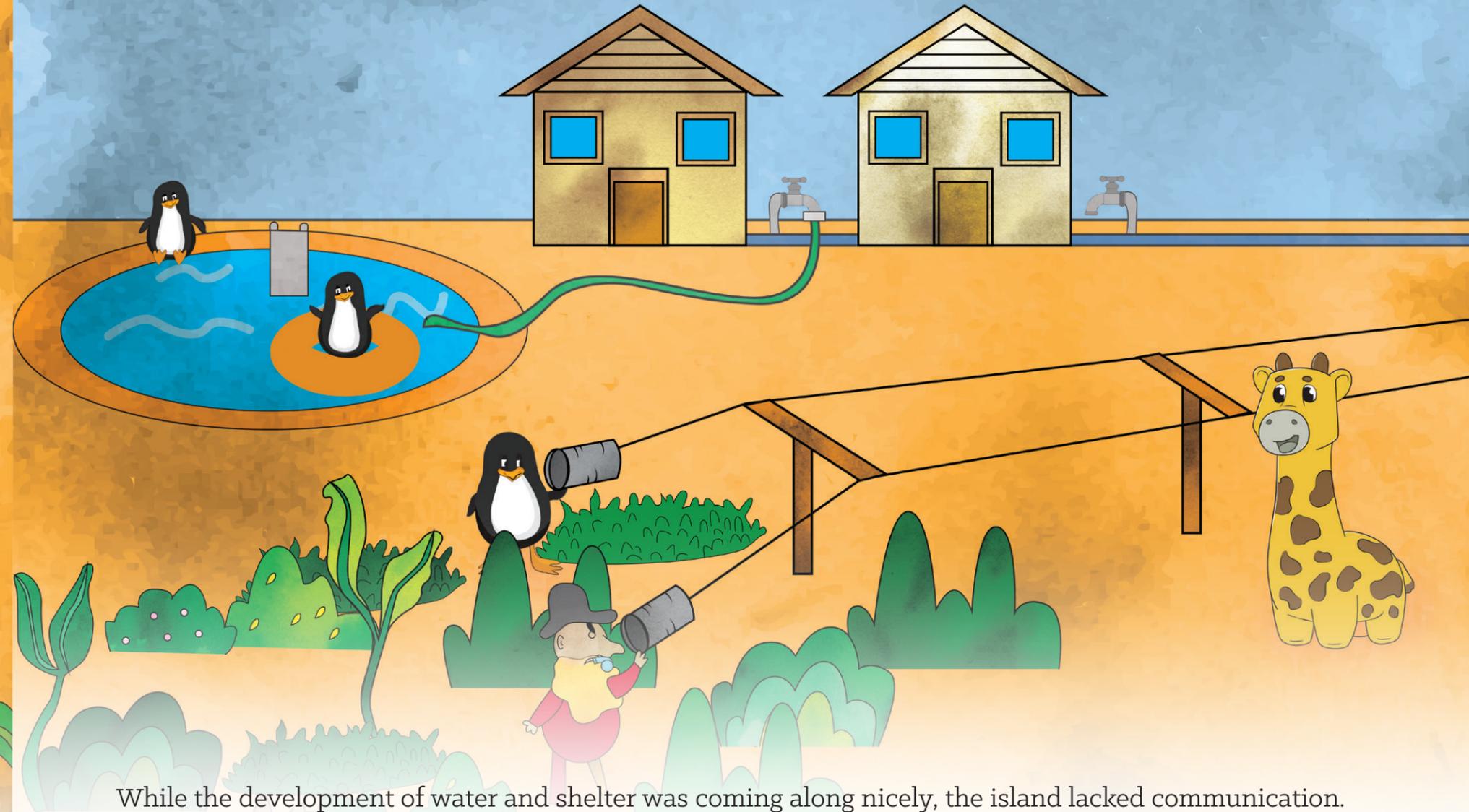


One of the nice things about the settlement's new applications was that they'd been turned into microservices. Goldie showed the penguins how to release new components without having to take them down.

Admiral Bash loved this new way of working! In the past, everytime he wanted to upgrade the legacy mainframe or the programs running on it, he had needed to take it down.

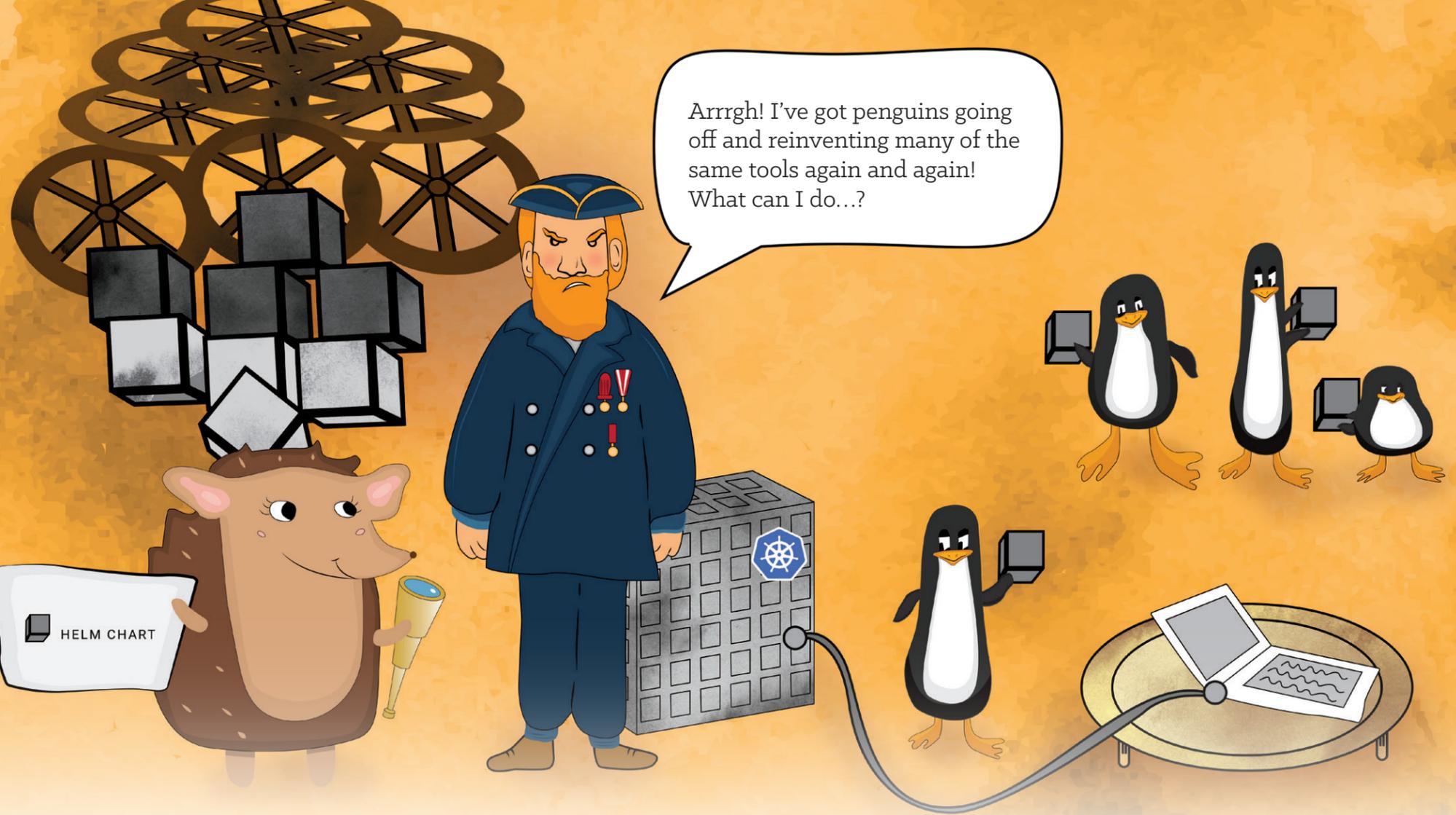


The penguins were eager to learn even more, so Phippy and Zee found themselves busy teaching Admiral Bash's crew new lessons. Phippy taught them how to write YAML, and Zee ran classes on security and policy management.

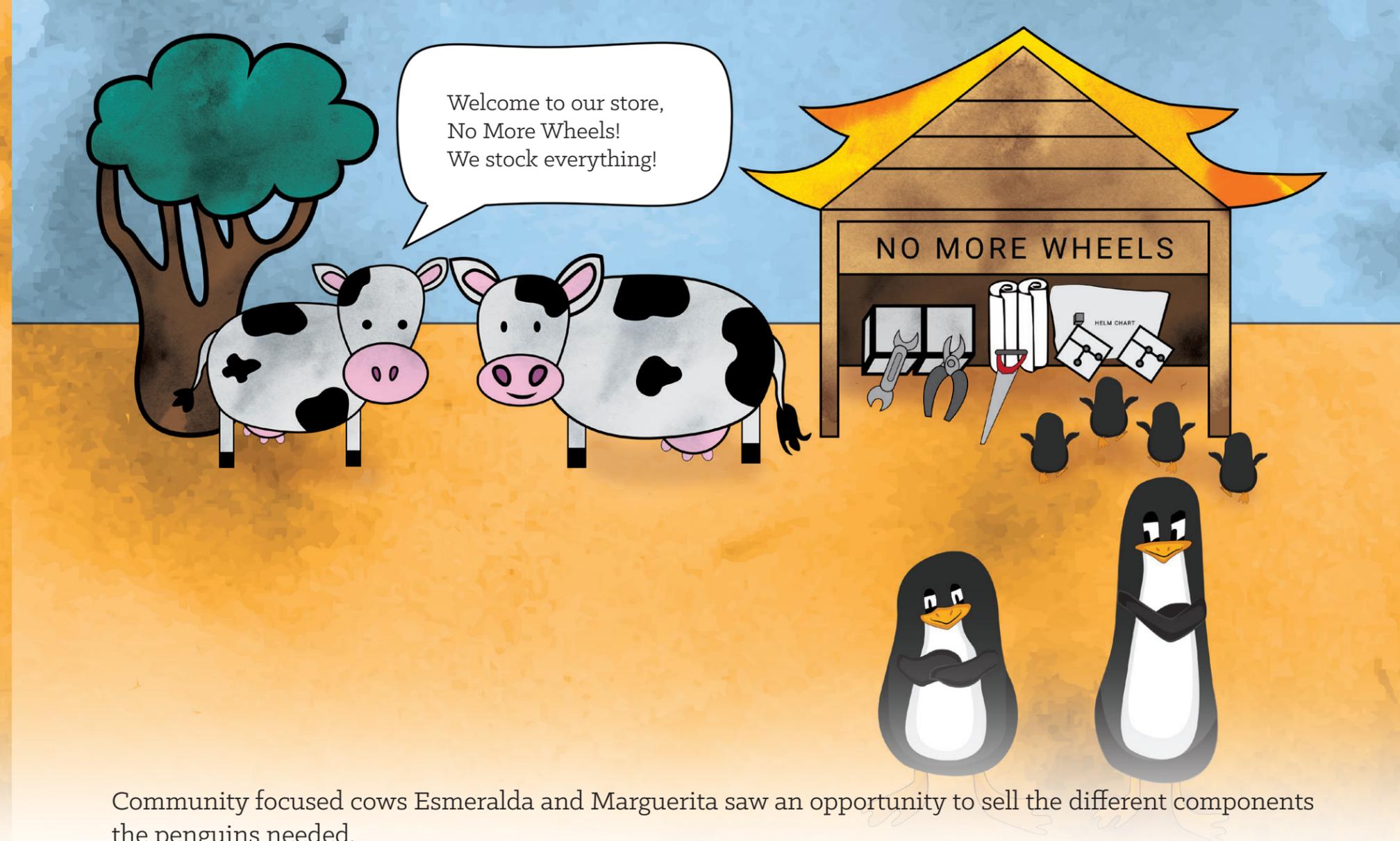


While the development of water and shelter was coming along nicely, the island lacked communication. The penguins decided to set up a basic phone system made of lengths of rope and cans, to allow clear communication. Phippy was very invested in this. Phippy's long neck made them the only animal able to hang the phone lines!

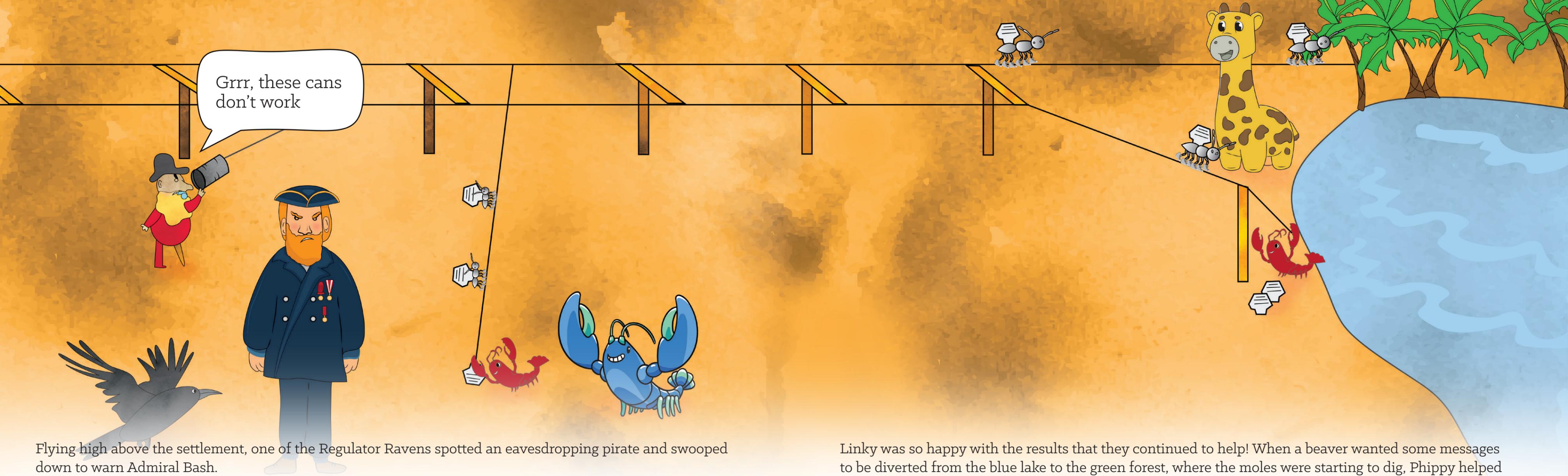
But unbeknownst to Admiral Bash, the pirates who attacked the SS Legacy had discovered the island! Never missing an opportunity, the pirates started phone phreaking using high-pitched whistles. They were an ever-present threat that no one was paying attention to...



Now the penguins were confident with the new technology, they built more and more applications. But Admiral Bash and his crew started struggling with repetition. The penguins had even reinvented the wheel! Hazel the Helm Hedgehog noticed they kept repeating steps, which was very time-consuming. So Hazel helped them to simplify everything. She created charts listing each component for the penguins. These templates mapped out exactly what was required for an application deployment.



Community focused cows Esmeralda and Marguerita saw an opportunity to sell the different components the penguins needed. They opened a store that sold wrenches, pliers, saws, Git, and even some standard applications and policies. To make life even easier, Hazel's charts were available at No More Wheels! Esmeralda was very happy with herself and everyone flocked to No More Wheels because it saved so much time and effort. It was a no-brainer!



Grrr, these cans don't work

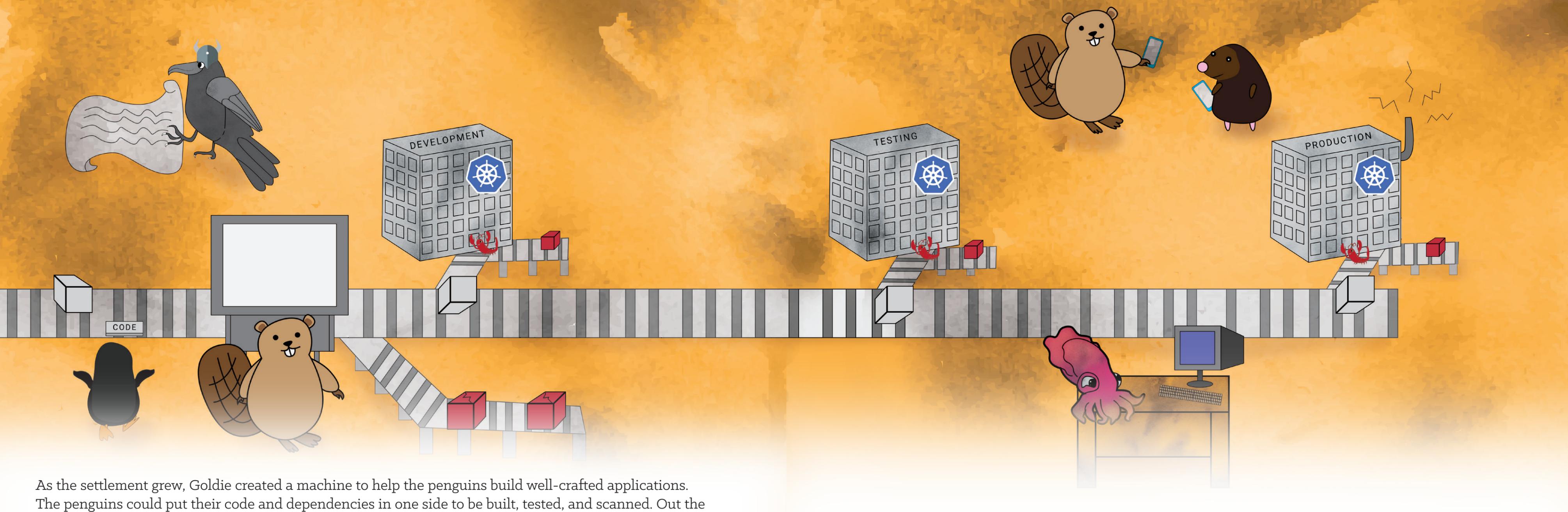
Flying high above the settlement, one of the Regulator Ravens spotted an eavesdropping pirate and swooped down to warn Admiral Bash.

Luckily, Linky the Lobster had a plan!

Linky had their team of lobsters write messages on shells in encrypted code. Then a Saharan Silver Ant collected the messages and transported them to another lobster, who decoded them. That stopped the Regulator Ravens from complaining and stopped the pirates from eavesdropping!

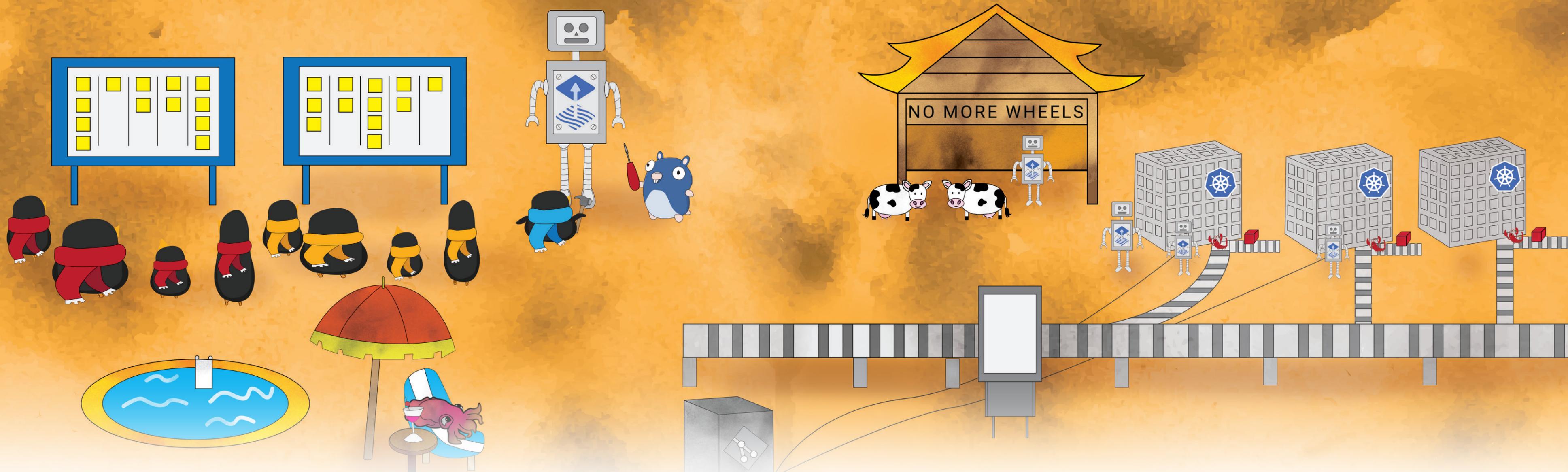
Linky was so happy with the results that they continued to help! When a beaver wanted some messages to be diverted from the blue lake to the green forest, where the moles were starting to dig, Phippy helped Linky's team of lobsters and ants string a new line and divert the messages.

Linky's mesh allowed Admiral Bash to test new lines, and connect new homes and buildings easily! The penguins loved Linky's approach and decided to use the same technique with their Kubernetes deployments.



As the settlement grew, Goldie created a machine to help the penguins build well-crafted applications. The penguins could put their code and dependencies in one side to be built, tested, and scanned. Out the other side came little containers that were delivered to separate Kubernetes clusters by conveyor belt, with each cluster having a different role for development and testing. At the end there was a production cluster that hosted all applications used by the beavers and moles. It worked beautifully!

Goldie added a scorpion gatekeeper to control admission to each cluster, and taught the Regulator Ravens to write policy. If a package didn't comply with the policy, the scorpion rejected it.



A curious thing started to happen with Admiral Bash's penguins. Rather than lining up in ranks and moving together (sometimes after delay - there was always one laggard!), the penguins now worked in little groups.

They'd stand together in front of whiteboards for 15 minutes each day, and then work in their own little groups. The penguins loved it! They worked on one thing, yet as a whole, they completed big projects!

Captain Kube's model for the crew was definitely working.

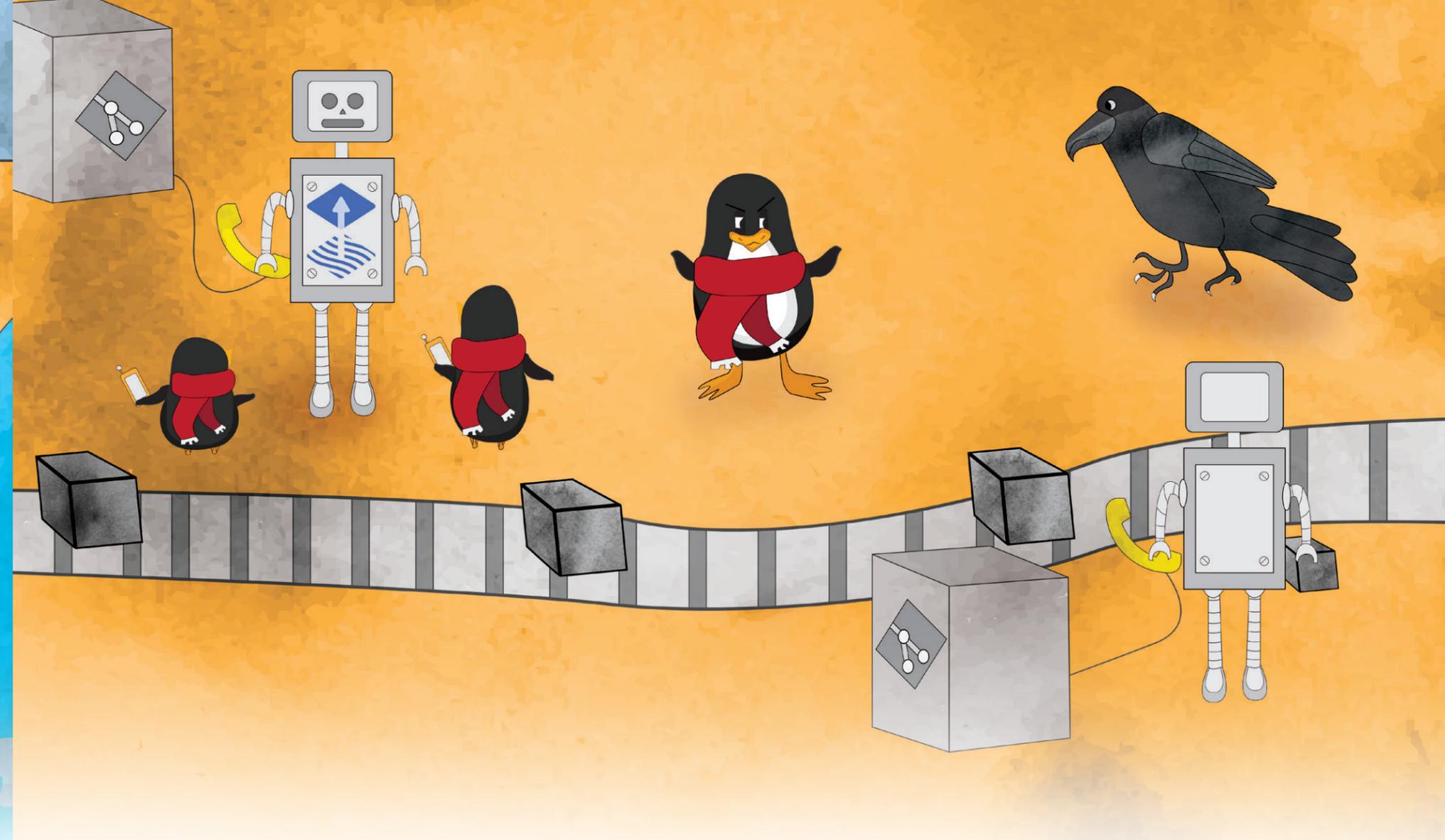
Goldie helped the penguins engineer 'Flux-bots' to deploy their applications. They really helped speed up getting the applications into Kubernetes, and meant the kube-cuttlefish was able to have a rest. Also, the bots were a lot more accurate!



Zee clocked the time it took for penguins to release software, counting the number of successful releases. The faster, the better!

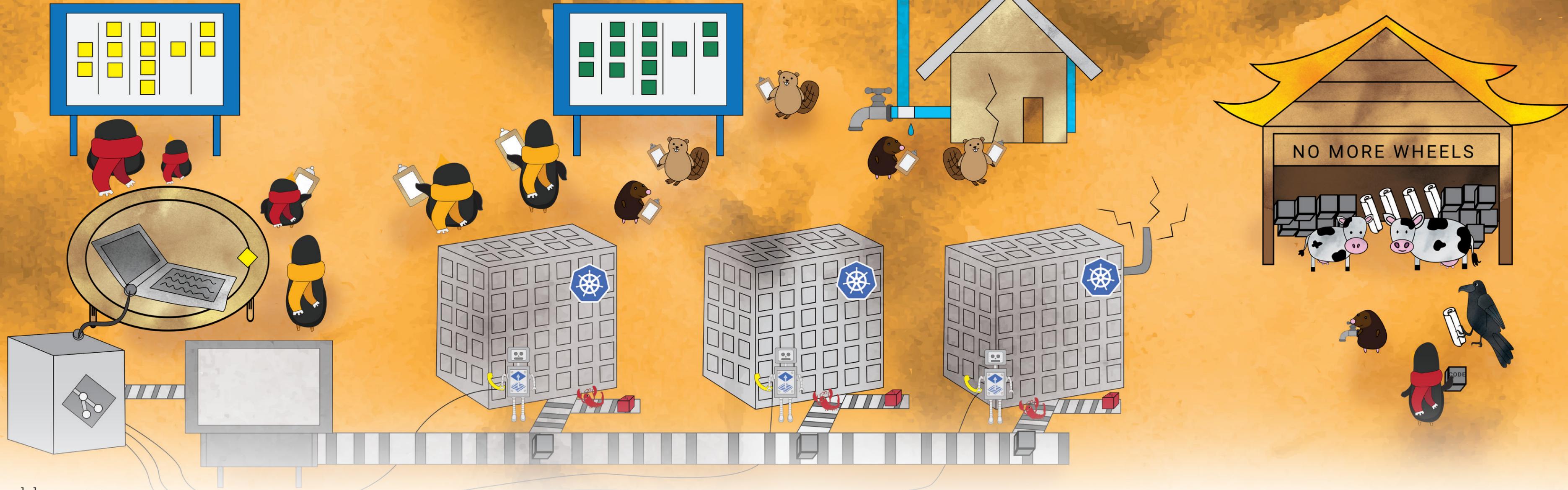
The beavers were very close to continuously building houses, save for the foreman's signoff.

And on the code side, now that all the application tests were automated, all Phippy had to do was approve each code release. Everything was continuously delivered up to that point.



The Flux-bots were very popular! The penguins used them to speed up development by quickly testing their applications, including their deployment, simply by checking a manifest into Git.

The penguins watched as the Flux-bots deployed them, and looked to use them for production. The Regulator Ravens were happy as it meant the kube-cuttlefish couldn't make ad hoc changes whenever asked by a penguin. The Ravens were always taking a hard line!



The feedback loop got stronger.

The penguins got feedback out of their deployment pipelines, and put it straight back into their code.

The beavers and moles found small building defects, and logged the issues as they repaired them, learning on the job.

The Regulator Ravens refined the policies based on what the penguins, beavers and moles found.

The Ravens made sure the policies were available at No More Wheels. This made it really easy for everyone to get hold of new policies for both software and buildings. It reduced defects and guardrails were in place, increasing the quality of everything!

Many of the items at No More Wheels were free for everyone to use and improvements were welcomed.



Admiral Bash noticed the crew was experimenting a lot more and had some new ideas for the beavers.

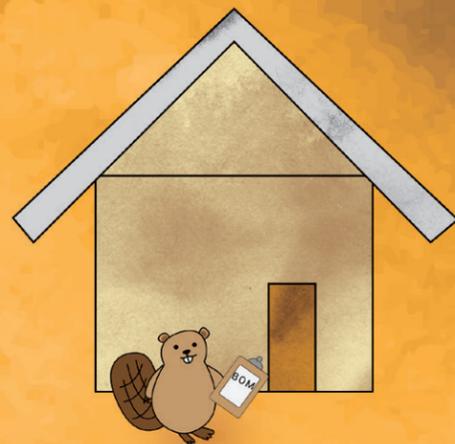
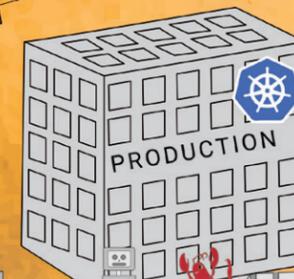
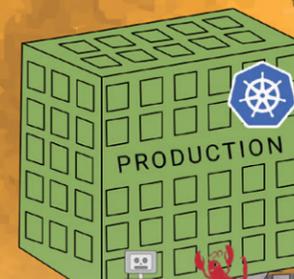
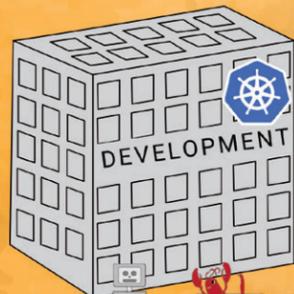
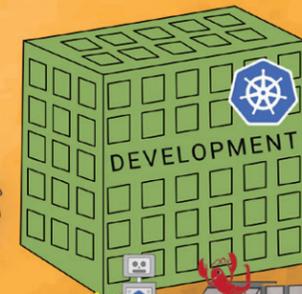
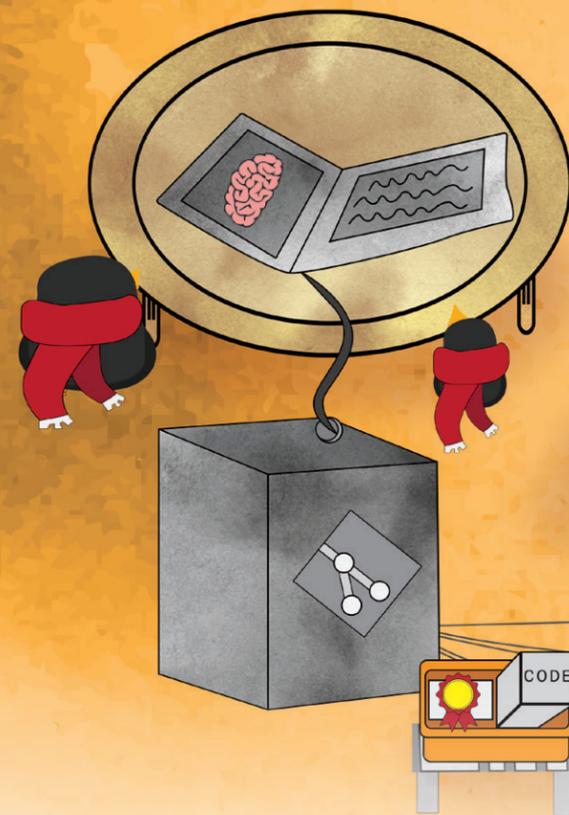
“Everyone has become much more comfortable experimenting! The community is actively contributing,” said Captain Kube.

Emerald and Marguerita started an online marketplace for No More Wheels to make its stock even more accessible.

The teams were working so smoothly, that when a penguin left to visit family, the team continued to work effectively.



Suddenly, the ever-present threat returned! A pirate attempted to sneak an unauthorized package onto the conveyor belt...



The penguins used Goldie's machine learning algorithms to predict when load would increase or decrease. Admiral Bash's existing clusters scaled easily. Excitingly, new clusters were created automatically when needed. Admiral Bash was in awe!

The machine handled the deployment of packages with lots of measurement. The Regulator Ravens took close note of how to tighten policy and paid special attention to what was deployed in Kubernetes, including documentation on exactly what was in each package, its dependencies and where it came from. Each package was signed off against its *Software Bill of Materials*, like the beavers' own lists of materials for their buildings. There was a lot of scanning, and security was universal.

Because the pirate package wasn't signed off it was rejected. The sneaky pirate plot was foiled!



Goldie was pleased: "Our applications match our platforms."

The old mainframe monoliths had been broken up, and applications were now loosely coupled. The crew was able to update parts of the applications much more easily.

Admiral Bash exclaimed: "This is what we wanted! We've come so far since the pirates sunk our mainframe, and we settled this uninhabited island."

With that, a cheer went up!



