EDA and the THREE DWARVES

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Once upon a time...

There was a baker named Snow White. She ran a bakery in the Kubernetes Kingdom. Her specialty? Apple pies.

The three dwarves TEKTON, and the KNATIVE brothers SERVE and EVENT, help her keep her BAKERY running.
TEKTON is a builder dwarf

When Snow White develops a new application for her BAKERY—say, a cupcake decoration application—

TEKTON takes her app code through a software development pipeline.

He builds & tests the application code—

packages it into a container

and deploys the containerized cupcake decoration app to OpenShift.
SERVE KNATIVE is a server dwarf

Anyone need anything?

TEKTON builds application containers, and SERVE serves them up in a serverless fashion in Kubernetes.

One cupcake please!!!

If SNOW WHITE is no longer using her cupcake decoration app because there are no open orders—

Phew

SERVE KNATIVE can stop the cupcake app deployment so it is no longer running.

As another cupcake order comes through—

One cupcake please!!!

SERVE can deploy the cupcake app again just in time.
I'd like to place an order of 4 dozen eggs.

Hello

I used—I know you used all the eggs.

I placed an extra order & I'm placing another today.

This is going to be egg-celent.

EVENT KNATIVE is an eventing dwarf

For example, as SNOW WHITE uses eggs up in her bakery, it may produce egg usage events

hehehe

EVENT KNATIVE may place an order with CHICKEN LITTLE for more eggs.

I'd like to place an order of 4 dozen eggs.

chirp
Meanwhile, in the lair of the EVIL QUEEN MALICIOUS, on a mountain top overlooking the Kubernetes Kingdom...
Your Highness— it’s from SNOW WHITE’S new Serverless EDA BAKERY.

This pie! Where did it come from? It’s delicious!

Your Highness— it’s from SNOW WHITE’S new Serverless EDA BAKERY.

Serverless? How does one serve customers without... servers?
Serverless doesn’t mean there are no servers, MALICIOUS. It means applications don’t run 24/7—they only run if they are needed and stop when they are not. It results in a more efficient allocation of resources—and the cakes and pies are always fresh.

Mirror, mirror, in the cloud; our royal enterprise infrastructure is the most serverless of all... correct?

Well...

Um... no~ My QUEEN, it is SNOW WHITE who has the most serverless architecture of all.
How is this SNOW WHITE able to have the most serverless architecture of all?

Her EDA cannot be overlooked.

EDA...? What is this... EDA?
EDA— Event Driven Architecture. It’s an application model based around real-world events rather than manual or periodic requests. Her bakery’s architecture can scale, stop, & deploy applications based on business-related events.

For example, this past Autumn when customers were scared of her spooky pumpkin pies—she was able to roll back on production.

When the winter holidays rolled in a few months later, the production for cranberry pie & regular pumpkin pie was scaled up.

After the holidays, everyone is so full of pies and leftovers that they scale down to zero pies for as long as they need.
We must have the most efficient and intelligent enterprise architecture in the land!

CROOOWW!

MALWARE! Drop this magic apple into SNOW WHITE’s apple supply. It will multiply, and taint her entire supply!
MAGIC MIRROR – while her business is disrupted, I want you to architect a serverless EDA based architecture for our Kingdom!

Yes my QUEEN.

I don’t think you really understand what serverless EDA means...
Just like rolling back on Snow’s spooky pumpkin pies, the bakery can rollback any potential errors so production isn’t affected.
I just received a BAD APPLE event from your apple pie quality scanner! Something’s wrong with this pie.
Is this... a poisoned apple in our filling?

It IS!

Blegh

Nooo...
Thank goodness that didn’t go out to customers!

Where there’s one bad apple, there could be more!

Let’s prepare!

SNOW WHITE whips out her Eclipse Che IDE and develops a poison-detection service.

TEKTON builds and tests SNOW WHITE’s service, bundling it into a container and pushing it into OpenShift for future deployment.
SERVE increases the number of poison detection services as a new apple delivery arrives.

When the delivery finishes, he will stop some of the instances to free up resources for other bakery tasks.

EVENT KNATIVE listens to the event channel, producing events when the new poison detector goes off, and consuming those events in order to route safe and poisoned apples.
Posioned apples are routed to a new conveyor belt system where they are bagged, tagged, and sent to the Kingdom’s CRIME LAB for analysis.

Safe apples are routed to the peeling and coring conveyor belt system to be baked into pies.

YIPPEE!
Meanwhile, at the evil QUEEN’s lair...

Mirror, mirror, on the wall...

Who’s enterprise architecture is best of them all?

Um... My QUEEN...

It is still SNOW WHITE’s bakery, that has a serverless event-driven architecture, and not our own architecture.
How was she able to keep running, when her apple supply was poisoned???

Your Highness, a serverless, event-driven architecture means that her bakery can flexibly scale to handle events like poisoned apples in their supply. We didn’t affect her apple pie output at all.
I'm going to buy more pie.
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GLOSSARY

Kubernetes - a secure, efficient and reliable open-source distributed system that runs on top of an operating system while interacting with pods of containers running on the physical computers (node). Kubernetes takes the commands from an administrator and relays those instructions to the computing machines. It automates software deployment, scaling, and management.

Software Development Pipeline - a process that drives software development through a path of building, testing, and deploying code. By automating the process, the objective is to minimize human error and maintain a consistent process for how software is released.

Container - an application packaging standard that provides all the files necessary for the application’s entire runtime environment. It’s portable and makes it easy to move the contained application between environments (dev, test, production, etc.) while retaining full functionality.

OpenShift - owned by Red Hat it is one of the leading distributions of Kubernetes. It’s a consistent hybrid cloud for building and scaling containerized applications.

Serverless - Serverless computing is a cloud-native development model that allows developers to build and run applications without having to manage servers for a short period of time. Physical servers are used but don’t need to be managed by developers.

Deployment - Deployment automation provides the ability to move your software between testing and production environments by using automated processes. This leads to repeatable and reliable deployments across the software delivery cycle.

Event - The record that something happened within an application, often originating from the external physical environment. The event is generated in one of the architecture components and is then handled by the software.

EDA - Event-driven architecture is a software architecture and model for application design. With an event-driven system, the capture, communication, processing, and persistence of events are the core structure of the solution. This differs from a traditional request-driven model. A tax preparation site might use EDA to spawn additional web servers during tax time for example.

Enterprise Infrastructure - Made up of hardware, software, networking, and services required to manage an environment. The result is a standardized platform across physical, virtual, private cloud, and public cloud environments, with solutions that work as well with one another as they do with your existing technologies and processes.

Eclipse Che IDE - An integrated development environment, is software for building applications that combines common developer tools into a single graphical user interface. It is an open-source multi-user development platform that is based in Java.
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