VMware Tanzu

Oh, the Microservices You'll Build!

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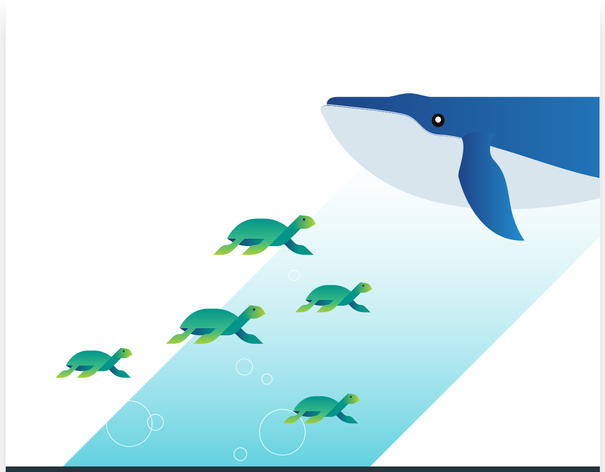
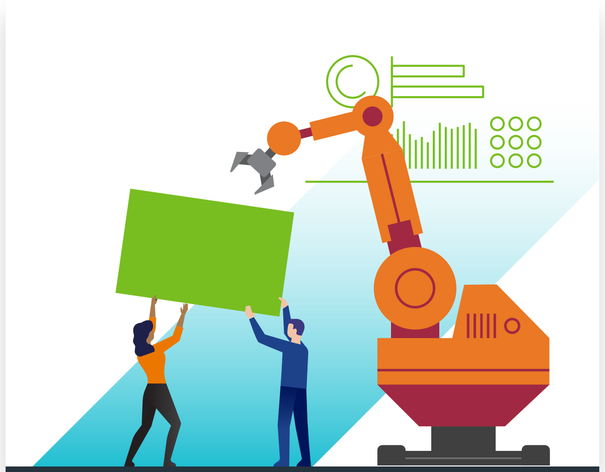
01
Introduction to Microservices



02
From Monoliths to Microservices



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Introduction to Microservices

You've heard the stories about organizations transforming their app development with microservices, and you want to join the revolution, but you don't know where to begin. What are microservices and how do they work? If I should be building them, how do I get there from my current architecture? What are the right tools to enable the rapid creation, delivery, and iteration of microservices? We'll help you answer all those questions, and more, so you can microservice happily ever after.

What are microservices?

First, you'll need to understand what microservices are. Check out this page for a 30,000-foot introduction to microservices. It covers how they help organizations, what you should think about before transitioning, and how microservices compare to monoliths.

CHECK OUT THIS PAGE >

Microservices vs. monoliths

Monolithic architectures have been the predominant way to build apps. This article will help you compare the pros and cons of monoliths to those of microservices.

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How do microservices work?

Now that you understand what microservices are, and how they compare to monoliths (you'll see that comparison frequently), you probably want to know how they work.

Microservices architecture 101

Take a look at this video to see how microservices work by comparing them to monolithic architecture using an example you may be familiar with, Uber.

WATCH THE VIDEO >

How are microservices packaged and where do they run?

You've heard about how microservices are smaller and more agile than monoliths, but you haven't learned one of the secrets to their success. Since microservices aren't magicians, we'll let you in on that secret: it's the use of containers, and containers are supercharged with Kubernetes.

Containers and Kubernetes 101

View this 3-minute video to quickly understand what containers are and how Kubernetes unleashes their full potential.

WATCH THE VIDEO >

Why containers matter

With your understanding of containers, this page will help you understand why they are critical.

VISIT THIS PAGE >

Containers in depth

If the overview content wasn't enough to satisfy your curiosity about containers, this video will help you get into the details.

WATCH THE VIDEO >

Kubernetes in 5 minutes

Chances are you'll want to hear a bit more about Kubernetes. This video will give you a better understanding of what it does.

WATCH THE VIDEO >

How do microservices communicate?

They say communication is key in relationships, and relationships between microservices are no different. How do all those little boxes of code communicate?

Communication in a nutshell

You'll want to make sure your microservices are structured to communicate well. This article provides a few helpful, high-level examples.

READ THE ARTICLE >

The technical details

If you want to learn even more, this article gets a little more technical and provides a few more structures to consider.

READ THE ARTICLE >

Should you use microservices?

Microservices are a pretty awesome architecture choice when you need velocity, and at this point you probably can't wait to use them. However, we recommend that you don't dive in headfirst.

Considerations for using microservices

When considering going the microservices route, this article will give you some important factors to keep in mind.

READ THE ARTICLE >

Responsible microservices

With great architecture comes great responsibility. This video on responsible microservices expands on the previous article and provides guiding principles.

WATCH THE VIDEO >

From Monoliths to Microservices

Now that you understand the value microservices can bring to an organization and can determine whether they're right for some of your most important workloads, the question becomes: How do you move away from monoliths and transform the way you develop applications?

Culture modernization

This may come as a surprise, but to modernize your app development, a key first step is to modernize your organization's culture.

Why change culture?

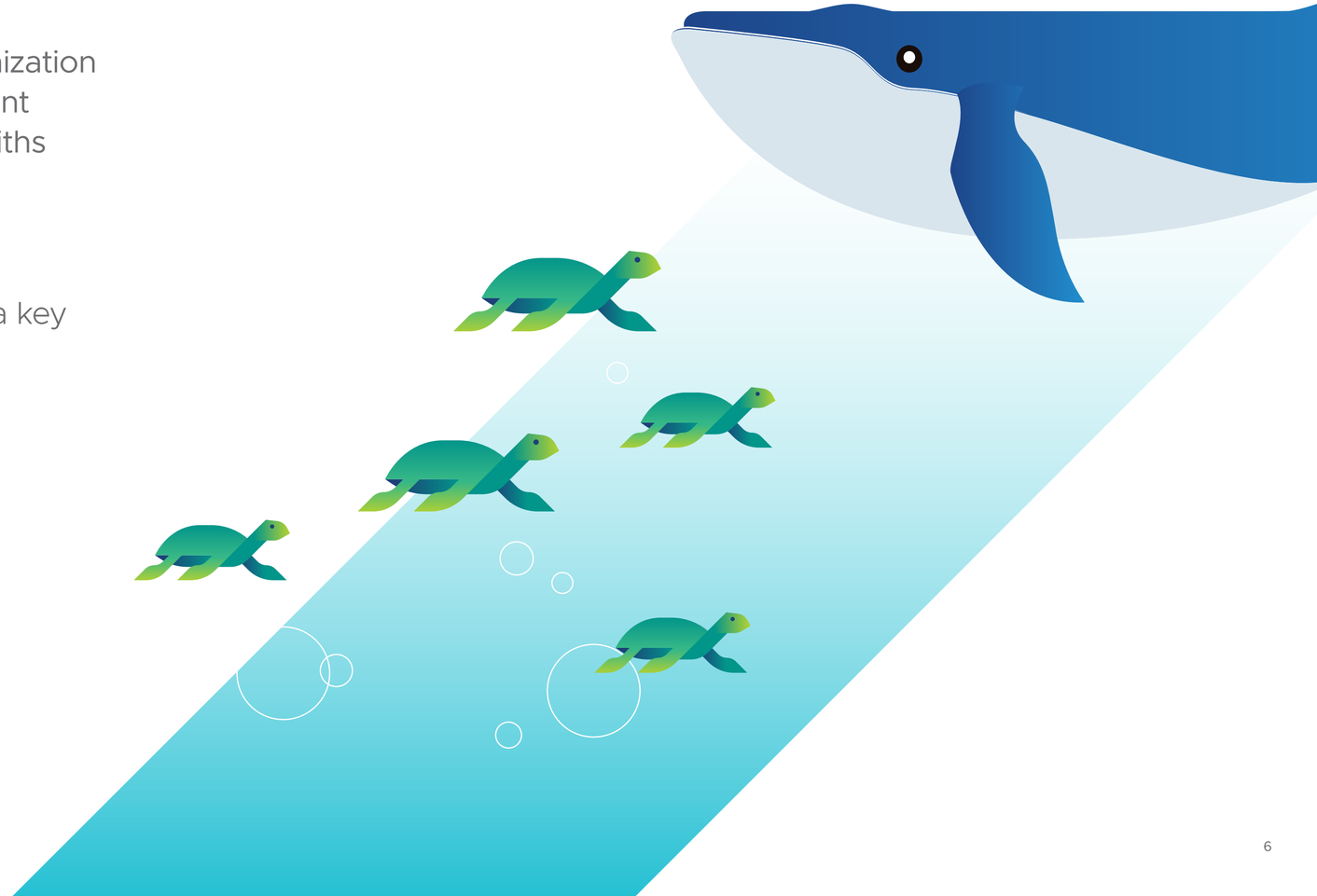
Read this article and you'll know why culture change is critical for successful microservices development. As a bonus, it also provides a few pointers on how to do it.

READ THIS ARTICLE >

Balanced Teams for software success

Teams are small culture units, and this whitepaper explains why Balanced Teams help with tackling complex software development issues.

READ THE WHITE PAPER >



Microservices should be paired with DevOps

There's a specific type of culture that fulfills the requirements set forth by the previous articles. DevOps practices help you get the most from a modern architecture.

What's DevOps, exactly?

You've probably heard of DevOps already, but you might still be hazy on what it is and why it's valuable. This page will help clear any confusion.

VISIT THIS PAGE >

Why do I want a CI/CD?

One of the biggest value-adds of a DevOps mindset is Continuous Integration & Continuous Deployment (CI/CD). Take a look at this page and see how CI/CD is as powerful as it sounds:

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Diving into culture transformation

For a deeper walkthrough on how to modernize your organization's culture — with examples of companies successfully transforming — read this insightful eBook.

READ THE EBOOK >

App modernization

Now that you've started priming your culture for app modernization, it's time to dive in.

Start modernizing today

With help from this whitepaper, you can get started on iteratively modernizing your apps in days and weeks – instead of months and years.

READ THE WHITEPAPER >

Cloud native app development

If cloud native is your jam, this eBook provides detail on building modern, cloud native apps.

READ THE EBOOK >

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Breaking down monoliths

One of the biggest challenges with app modernization is transforming monoliths. These overwhelming behemoths can be decades old, and there might only be a few people, or possibly no one, in the organization who knows them inside and out. This poses some risks.

Dipping your toe into refactoring

To begin easing into the thought process and learning some concepts for refactoring monoliths, take a look at this page.

VISIT THE PAGE >

Waist-deep in refactoring

In this video you'll get some more detail (including some technical stuff) on what refactoring entails and how you can test the process.

WATCH THE VIDEO >

Remote event storming

As part of refactoring, you'll likely want to event storm. Here's an article on how to successfully conduct a remote event storming session.

READ THE ARTICLE >

Up to your neck in data...and refactoring

As you're refactoring apps, it's likely that you will experience challenges with your data. This talk will help you work through those challenges.

LISTEN TO THE TALK >

Modernization case studies

Though a heavy lift, there's light at the end of the refactoring-monoliths-to-microservices tunnel, and here are some case studies to prove it.

Northern Trust

Watch how Northern Trust transformed legacy apps.

WATCH THE VIDEO >

Express Scripts

See how Express Scripts cleared data hurdles while transforming from mainframes to microservices.

SEE HOW >

Scotiabank

Scotiabank now uses microservices to accelerate app development. See how they did it.

SEE HOW >

Modernizing APIs

To begin easing into the thought process and learning some concepts for refactoring monoliths, take a look at this page.

LEARN HOW >

Common Microservices Development Patterns

You're now deep in the throes of modernizing your app development and refactoring your monoliths, but you might be stuck on how you should best architect your microservices. Don't reinvent the wheel! We've gathered some resources to help.

Microservices architecture video series

A robust series of videos on microservices architecture and design.

WATCH THE VIDEOS >

The 12-factor app

This site will help you understand how to develop 12-factor apps.

VISIT THE SITE >

App modernization recipes

Take a look at this collection of patterns to help you quickly build modern apps.

VISIT THE SITE >

Backends for frontends

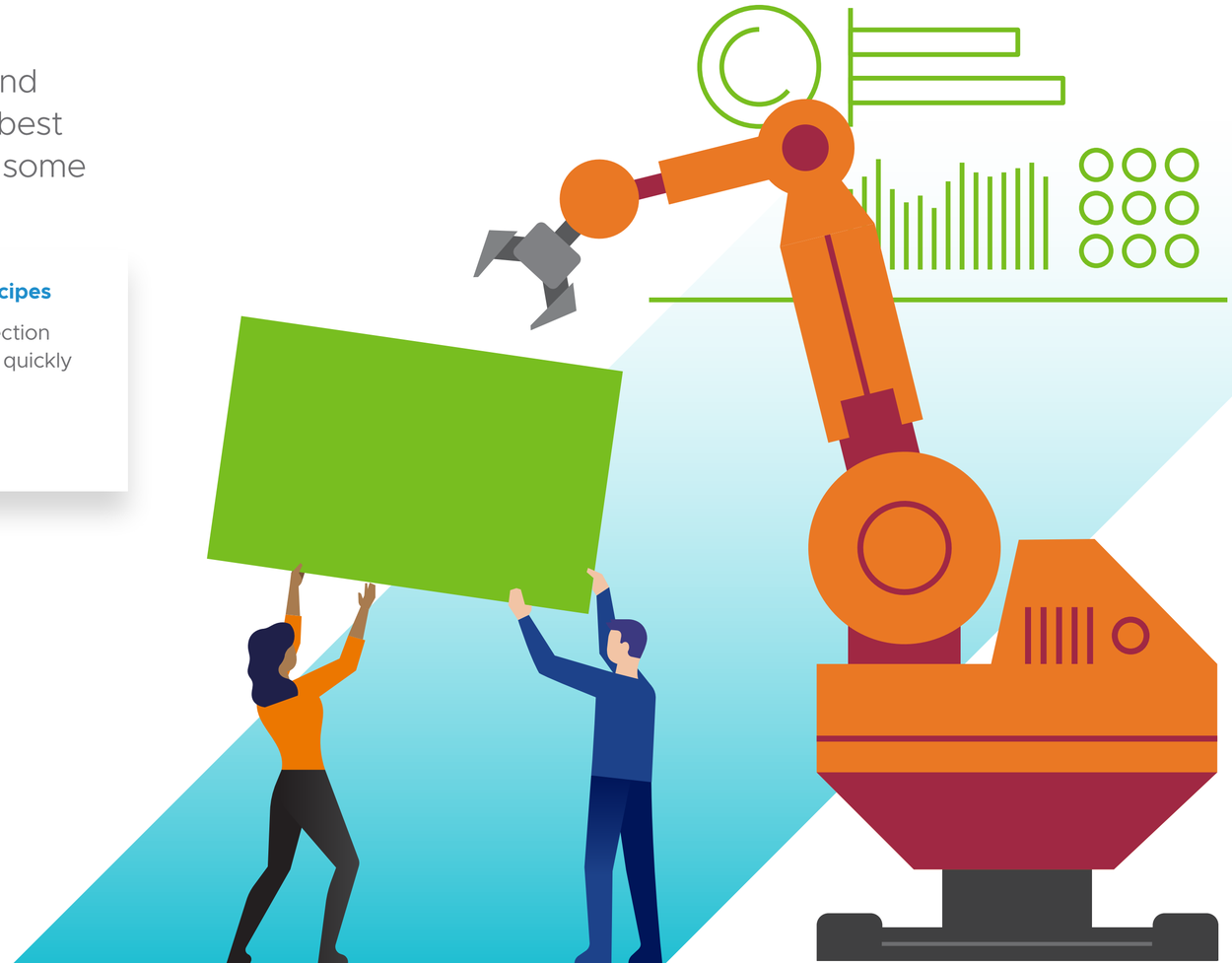
Here's an article discussing backends for frontends architecture.

READ ARTICLE >

Gateway

An API Gateway will facilitate backends for frontends. Check out this page to learn more.

VISIT THE SITE >



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Service discovery

Advice on server-side discovery in microservices.

READ THE ARTICLE >

Advice on client-side discovery in microservices.

READ THE ARTICLE >

Strangler application

Strangler applications come in handy, particularly when refactoring monoliths. Learn more here.

READ THE ARTICLE >

Circuit breaker

Here's a guide on using circuit breaker architecture.

READ THE GUIDE >

How circuit breaker handle failures

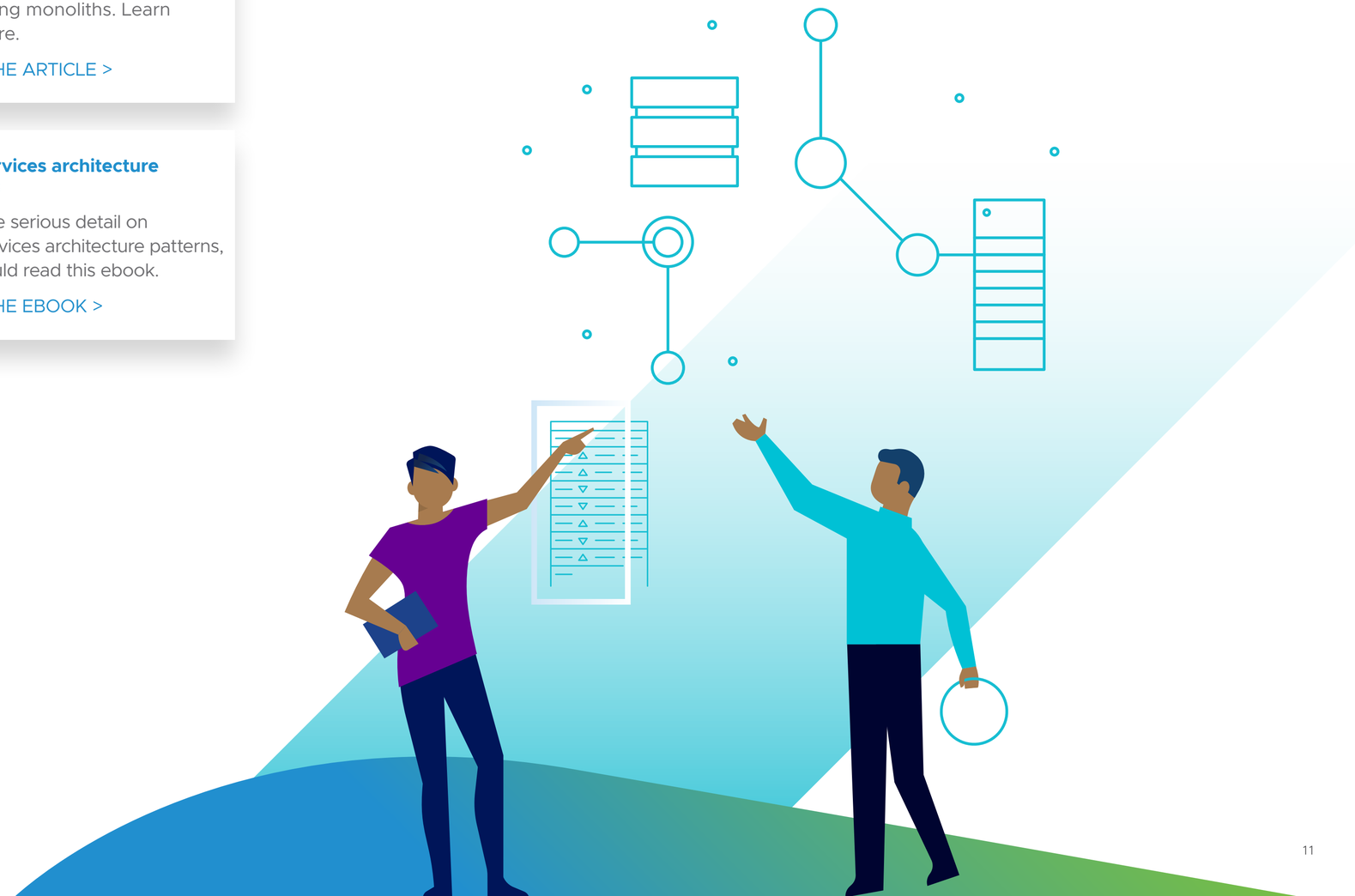
This video gives an example of how circuit breaker architecture handles failures.

WATCH THE VIDEO >

Microservices architecture patterns

For some serious detail on microservices architecture patterns, you should read this ebook.

READ THE EBOOK >



Tools to Enable Microservices

You're crushing it. You've gained an understanding of what microservices are and how they benefit your organization, how to modernize your culture and applications, and how to use patterns in microservice development. But now you really want to get the most out of your microservices, don't you? Are there ways to further boost them? You bet.

VMware's Tanzu Portfolio

VMware's Tanzu portfolio has all sorts of tools to further enable your microservices.

Tanzu Build Service

Want to quickly build container images for your microservices? Check out Tanzu Build Service for automating container creation, management, and governance at the enterprise scale.

LEARN MORE >

Tanzu Application Catalog

Open source components are a critical piece of the microservices puzzle. Tanzu App Catalog delivers these services as containers and Helm charts — maintained with best practices and ready to use in production.

LEARN MORE >

Tanzu Application Service

You can't have modern apps without a modern app runtime. Tanzu Application Service is just the runtime for the job.

LEARN MORE >

Tanzu Kubernetes Grid

Tanzu Kubernetes Grid is the enterprise-ready Kubernetes runtime to automate deployment and management of your containers.

LEARN MORE >

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Tanzu Mission Control

When you're using Kubernetes at scale across clouds, you'll want an easy way to manage them. Tanzu Mission Control makes multi-cluster, multi-cloud Kubernetes management a piece of cake.

LEARN MORE >

Tanzu Service Mesh

Networking and security are crucial for successful microservices. Find out how Tanzu Service Mesh can connect and protect your microservices applications.

LEARN MORE >

Service Mesh for Dummies

If you're new to service mesh, you should read Service Mesh for Dummies.

LEARN MORE >

Tanzu Observability

Tanzu Observability helps you gain much-needed visibility and analytics into your microservices to quickly identify issues and troubleshoot them.

LEARN MORE >

VMware Pivotal Labs

If you want to develop and deliver production outcomes quickly, and adopt proven cloud native development practices, VMware Pivotal Labs is here for you.

LEARN MORE >

Get started

It's been quite a journey; we hope you've learned a ton about microservices. If you've got more questions about microservices or how VMware's Tanzu portfolio can facilitate your modern app development, please raise your hand! We're always happy to help.

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