Introduction to Microservices

Hello!

Paige Bernier & Maureen Dugan

@alpacatron3000

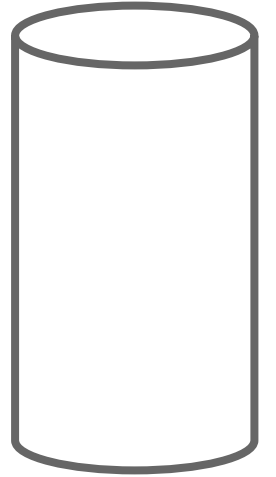**1**

What exactly *is* a microservice?

An application built as a **collection** of loosely coupled, fine-grained **services** talking via lightweight protocols
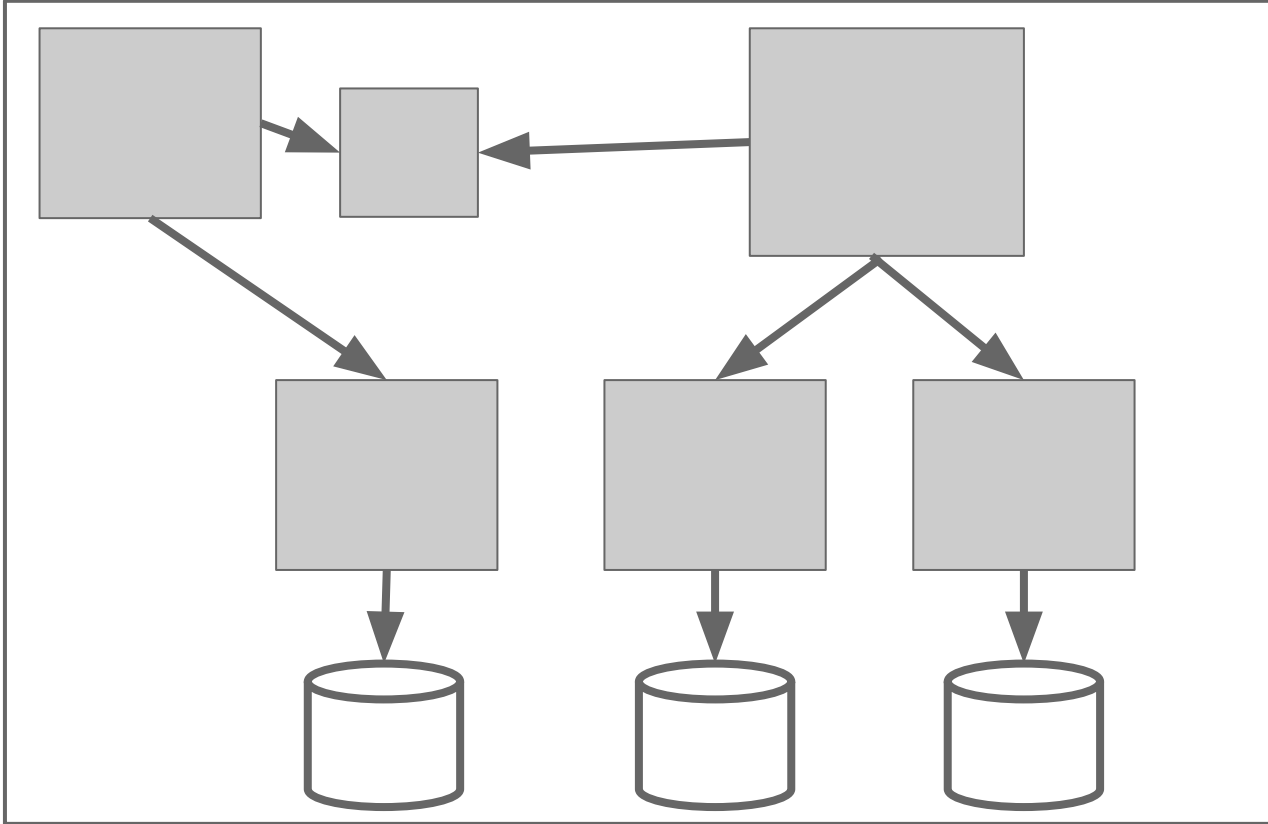
"Microservices are nothing more than service oriented architecture (SOA) done properly."

- Randy Shoup VP of Eng @ WeWork

Monolith

Microservices

Category +

Heel Height +

Occasion +

Size +

Width +

Color +

Price +

Brand +

Saint Laurent Yeti Tall Boot (Women)
$10,000.00
★★★★★ (1)

Saint Laurent Yeti Boot (Women)
$7,000.00

Balenciaga Sequin Over the Knee Boot (Women)
$3,400.00

New!

Balmain Isis Clear Studded Pointy Toe Bootie (Women)
$2,350.00

Inventory

Category +

Heel Height +

Occasion +

Size +

Width +

Color +

Price +

Brand +

Rating

Inventory

Saint Laurent Yeti Ta... ...men)
$10,000.00
★★★★★ (1)

Balenciaga Sequin Over the Knee Boot (Women)
$3,400.00

New!
Balmain Isis Clear Studded Pointy Toe Bootie (Women)
$2,350.00

Item

Pointy Toe Mid Boot

BALENCIAGA

$2,190.00   Free Shipping

Shimmering sequins and a dramatic pointy toe make this stretchy boot with a contour-hugging shaft hard to miss.

Fit Runs small; order next size up.

Size

Size guides

Argento

1

Add to Bag

Add to Wish List

Check availability near you. Find a location

Similar styles

Christian Louboutin
$1095.00

New!
Giuseppe Zanotti
$795.00

Tabitha Simmons
$845.00

Miu Miu
$990.00

Designer   Women   Men   Kids   Home & Gifts   Beauty   Sale   What's Now

Search   Hi, Paige

Pointy Toe Mid Boot
BALENCIAGA

Add on

Size

Size guides

Argento

1

Add to Bag

Add to Wish List

Check availability near you. Find a location

Similar styles

Christian Louboutin
$1095.00

New!
Giuseppe Zanotti
$795.00

Tabitha Simmons
$845.00

Miu Miu
$990.00

Item

Add on

Cart

Search   Hi, Paige   1

Pointy Toe Mid Boot
BALENCIAGA

$2,190.00   Free Shipping

Size

Size guides

Apparte

1

Add to Bag

Add to Wish List

Check availability near you. Find a location

Similar styles

Christian Louboutin
$1095.00

New! Giuseppe Zanotti
$795.00

Tabitha Simmons
$845.00

Miu Miu
$990.00

Item

Add on

Cart

Wish List

Pointy Toe Mid Boot
BALENCIAGA

Size

Size guides

Amante

1

Add to Bag

Add to Wish List

Similar styles

Christian Louboutin
$1095.00

New!
Giuseppe Zanotti
$795.00

Tabitha Simmons
$845.00

Miu Miu
$990.00

2

Writing

Writing

Single responsibility
- Adding items
- Removing items
- Sharing the list

Wish List

Writing

Wish List

- **Single responsibility**
  - Adding items
  - Removing items
  - Sharing the list
- **Independently scalable**
  - Holiday shopping
  - Big sales

Writing

Wish List

- **Single responsibility**
  - Adding items
  - Removing items
  - Sharing the list
- **Independently scalable**
  - Holiday shopping
  - Big sales
- **Service dependencies**
  - Account
  - Inventory

Writing

Wish List

- **Single responsibility**
  - Adding items
  - Removing items
  - Sharing the list
- **Independently scalable**
  - Holiday shopping
  - Big sales
- **Service dependencies**
  - Account
  - Inventory
- **Specific datastore**

Writing

Documentation!

Writing

Documentation!

Informative Error Handling!

Writing

Documentation!
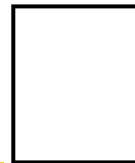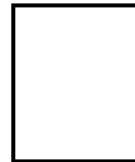
Informative Error Handling!

Standardize!

3

Testing

Complexity shifts to the interactions between services in an ever-changing environment.

Testing

Unit Tests

Testing

Unit Tests

Load Tests

Testing

Unit Tests

Load Tests

Integration Tests

Testing
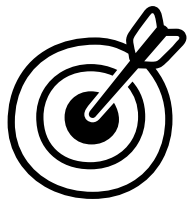
Unit Tests

Load Tests
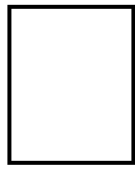
Integration Tests

Game Days

Anything can change

Requirements
New features
High traffic
New technology
New people

Monoliths

Saint Laurent Yeti Tall Boot (Women)

$10,000.00

★★★★★ (1)

Saint Laurent Yeti Boot (Women)

$7,000.00

Balenciaga Sequin Over the Knee Boot (Women)

$3,400.00

New!

Balmain Isis Clear Studded Pointy Toe Bootie (Women)

$2,350.00

Monoliths

Pros

- One application, one deploy
- Great for getting started

Cons

- Complexity grows with time
- Pace of work slows

Microservices

Pros

- Simplified services
- Pinpointed scaling
- Interchangeable services

Microservices

Pros

- Simplified services
- Pinpointed scaling
- Interchangeable services
- **Clear ownership**
- **Continuous deployment**

Microservices

Pros

- Simplified services
- Pinpointed scaling
- Interchangeable services
- Clear ownership
- Continuous deployment

Cons

- Overall system complexity

Microservices

Pros

- Simplified services
- Pinpointed scaling
- Interchangeable services
- Clear ownership
- Continuous deployment

Cons

- Overall system complexity
  - Deploys
  - Monitoring
  - Collaborating

4

Deploys

Deploys
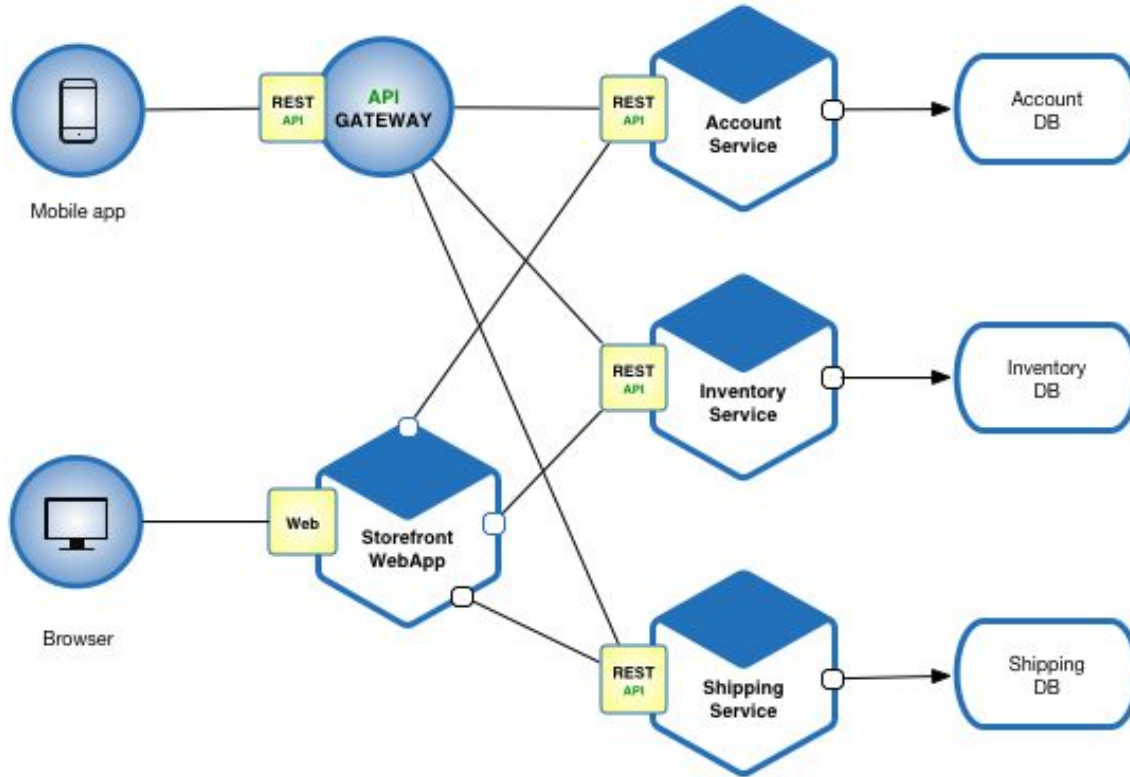
Deploys
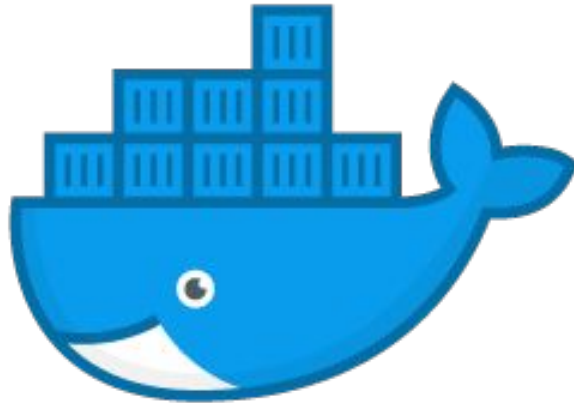
Deploys

```
$ run a test command

$ build the image

$ deploy the image to containers
```

Deploys

4

- Be aware of associated services
- Deploy incrementally
- Microservices go hand in hand with containerization
- Adopt standard best practices on how to deploy and how to use your available infrastructure

5

Monitoring

Monitoring

Monitoring

Monitoring

| Web Framework |
| Web Framwork + RPC + External Service API |
| RPC |
| RPC |
| External Service API |
| API |
| API |
| API |

time

Monitoring

5
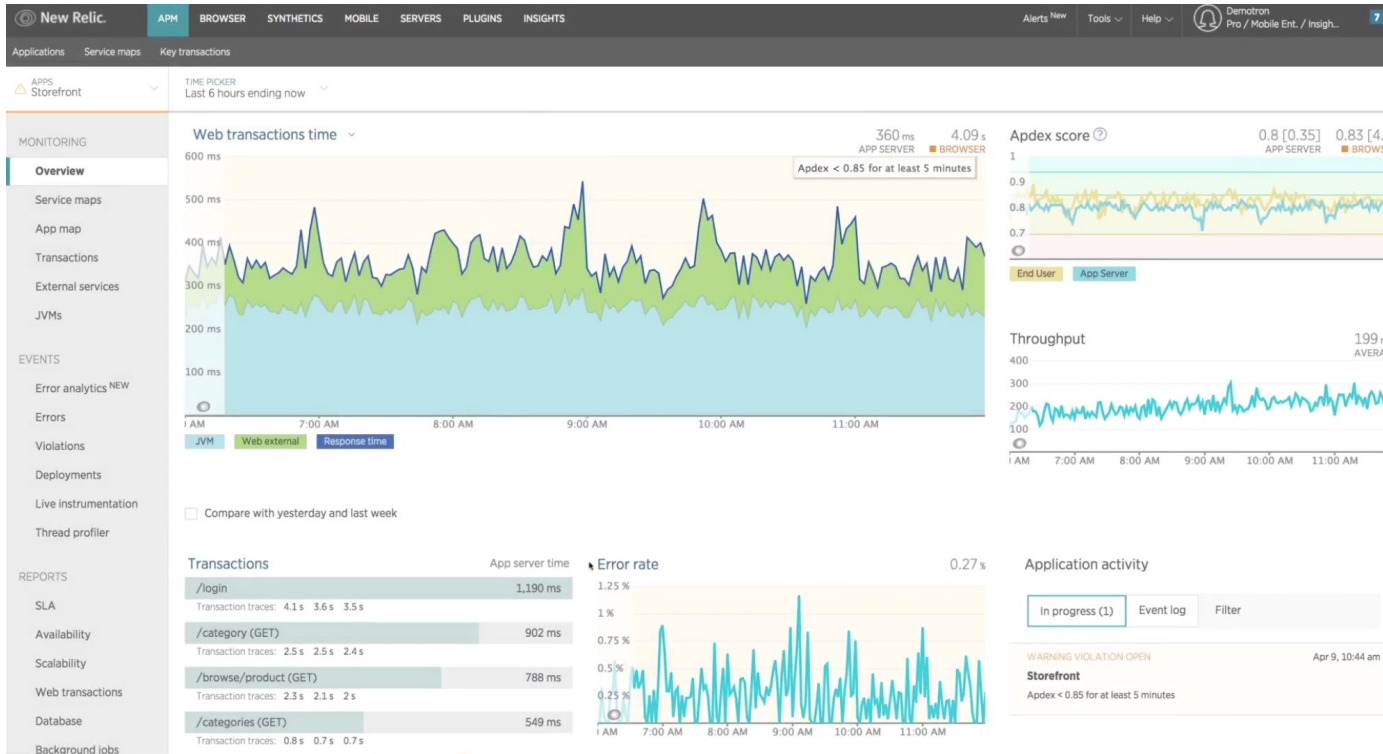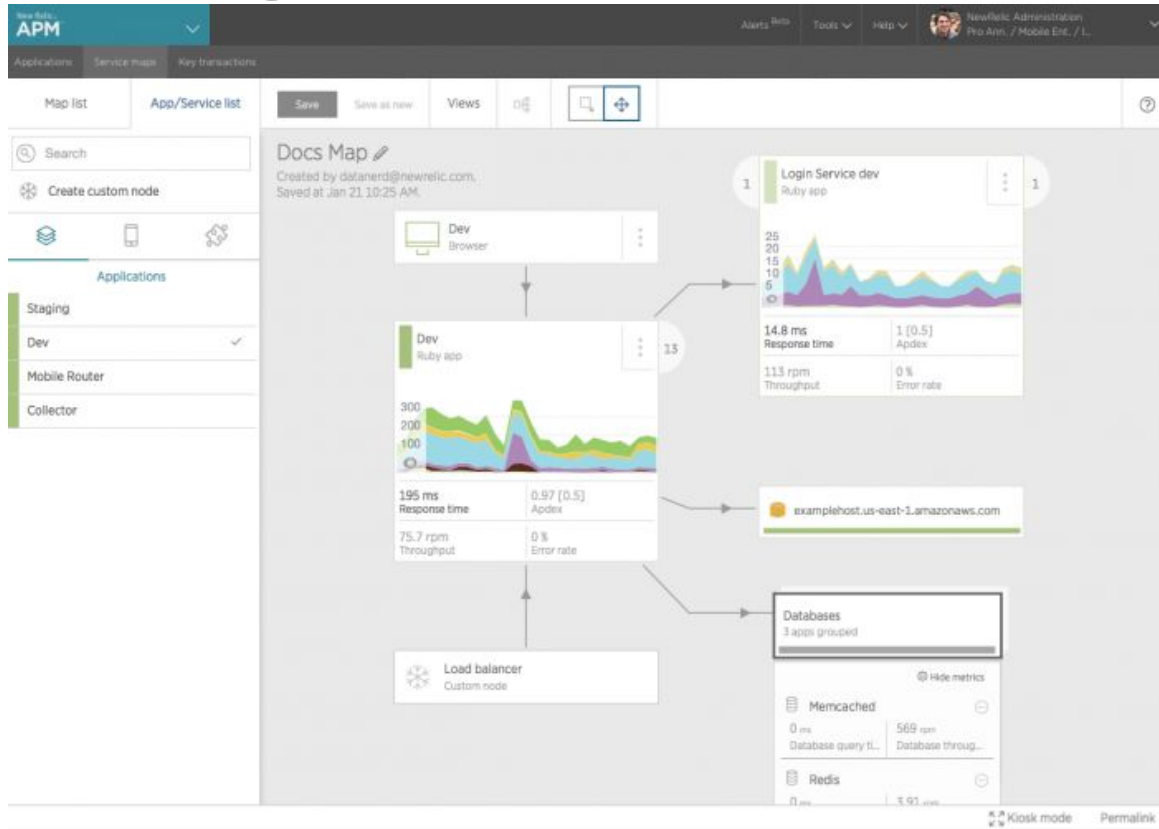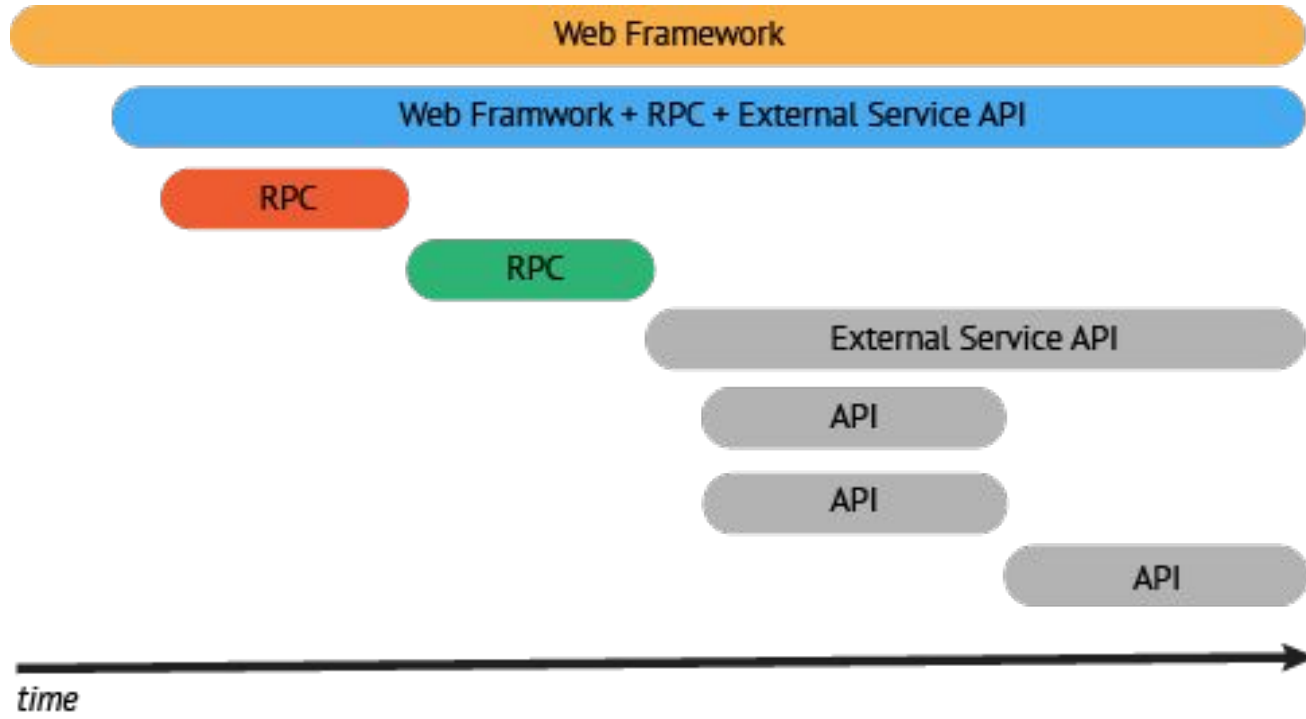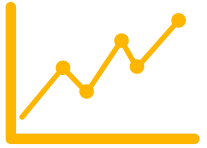
- Application monitoring is an important foundational practice
- As microservice systems grow, tooling for monitoring adapts
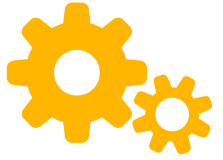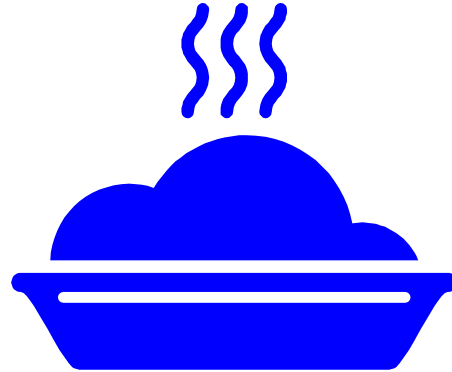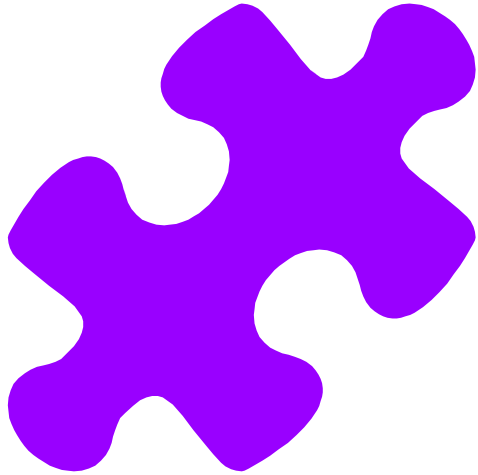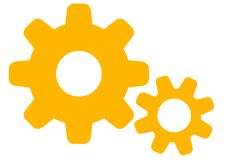- Monitoring aims to speed up the time to find production issues

6

Collaborating
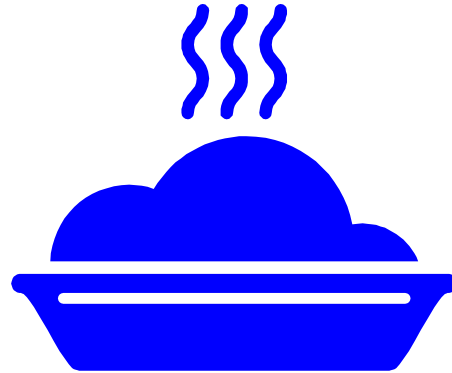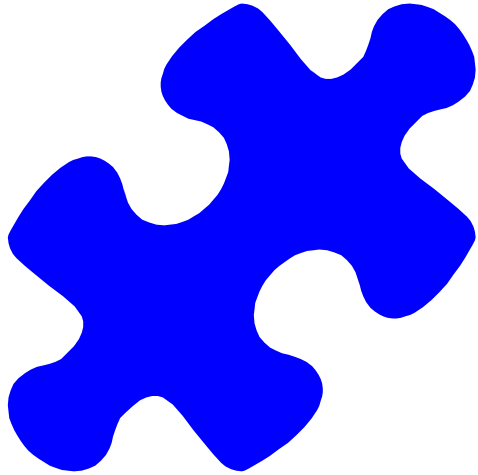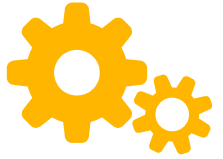
Collaborating

Collaborating

Collaborating

Collaborating

Collaborating

6
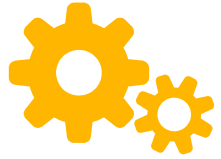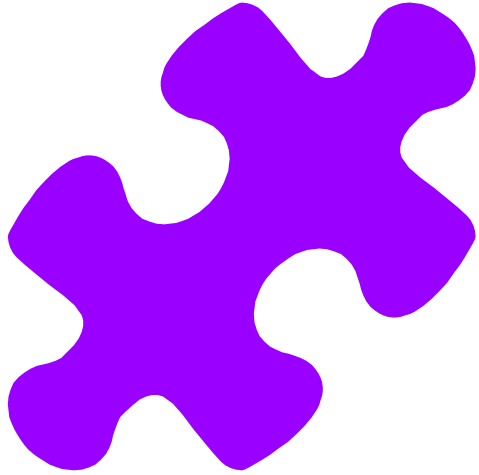
- Individuals skills are magnified through collaboration
- Change of ownership can be hard, but has many benefits

Confident Microservices

Books

- Production Ready Microservices, Susan Fowler
- Tao of Microservices, Richard Rodger
- Building Microservices, Sam Newman
- https://www.martinfowler.com/microservices/
- Microservices From Idea To Starting Line
- Microservices 101
- Microservices 101: 13 part series
- Microservices vs. Monolithic

Articles

- https://www.martinfowler.com/microservices/
- Microservices 101: 13 part series Microservices From Idea To Starting Line
- Microservices 101
- Microservices vs. Monolithic
- Communication Patterns in a Microservice World