Introduction to Microservices
Hello!
Paige Bernier & Maureen Dugan
@alpacatron3000
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
Microservices
Inventory

- Saint Laurent Yeti Tall Boot (Women)
  - Price: $10,000.00
  - Rating: 5 stars (1 review)

- Saint Laurent Yeti Boot (Women)
  - Price: $7,000.00

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

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

1

Add to Bag

Check availability near you. Find a location
Add on

- Christian Louboutin
  - Size: $1995.00

- New! Giuseppe Zanotti
  - Size: $795.00

- Tabitha Simmons
  - Size: $845.00

- Miu Miu
  - Size: $990.00

Check availability near you. Find a location
Writing
Writing

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

Error Handling!

Informative
Writing

Documentation!

Error Handling!

Informative

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

Unit Tests
Testing

Unit Tests

Load Tests
Testing

- Unit Tests
- Integration Tests
- Load 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)
  - Price: $10,000.00
  - Rating: 4 stars (1 review)

- Saint Laurent Yeti Boot (Women)
  - Price: $7,000.00

- Balenciaga Sequin Over the Knee Boot (Women)
  - Price: $1,400.00

- New!
  - Balmain Isis Clear Studded Pointy Toe Bootie (Women)
    - Price: $2,350.00
<table>
<thead>
<tr>
<th>Pros</th>
<th>Cons</th>
</tr>
</thead>
<tbody>
<tr>
<td>One application, one deploy</td>
<td>Complexity grows with time</td>
</tr>
<tr>
<td>Great for getting started</td>
<td>Pace of work slows</td>
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Microservices

Pros

● Simplified services
● Pinpointed scaling
● Interchangeable services
Microservices

Pros

- Simplified services
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- Interchangeable services
- Clear ownership
- Continuous deployment
Microservices

**Pros**
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**Cons**
- Overall system complexity
Microservices

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

**Cons**
- Overall system complexity
  - Deploys
  - Monitoring
  - Collaborating
Deploys
Deploys
Deploys

$ run a test command

$ build the image

$ deploy the image to containers
Deploys

- 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
Monitoring
Monitoring
Monitoring
Monitoring

- 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
Collaborating
Collaborating
Collaborating
Collaborating
Collaborating
Collaborating

- 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/](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