vistaprint®

MICROSERVICES @ CIMPRESS

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What Is Mass Customization

- Mass customization is the process of
  - making customized, personalized products that are accessible to individuals and small businesses
  - manufacturing, assembly lines, supply chains, and software at every step along the way

- Cimpress has
  - Printers
  - warehousing machines
  - supply chain management tools
  - M-2-M computer-integrated manufacturing process
  - Has been around for more than 20 years
  - In India we sell as Vistaprint brand (www.vistaprint.in)

Cimpress In India

- Vistaprint Brand
  - individuals and small businesses
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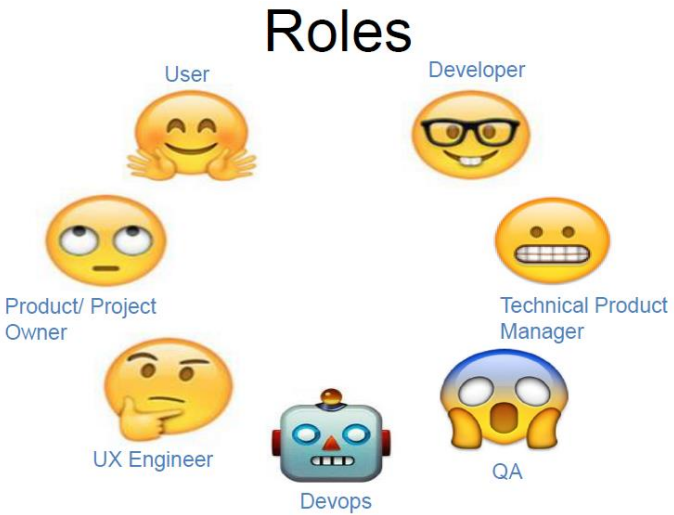
What matters and to Whom?

You are either building a software business…

Or losing to someone who is.

- @littleidea



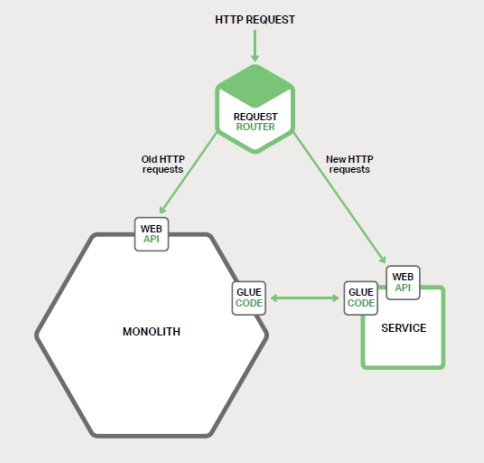
What We Learn From Great Tech Companies

- Technology
  - Build technology for ease of business
- People
  - Hire smart and talented people across various domains
- Product
  - Provide products as business enablers
- Data
  - Create visibility of insights for remaining competitive
- Go-To-Market
  - Disrupt Go-To-Market strategies

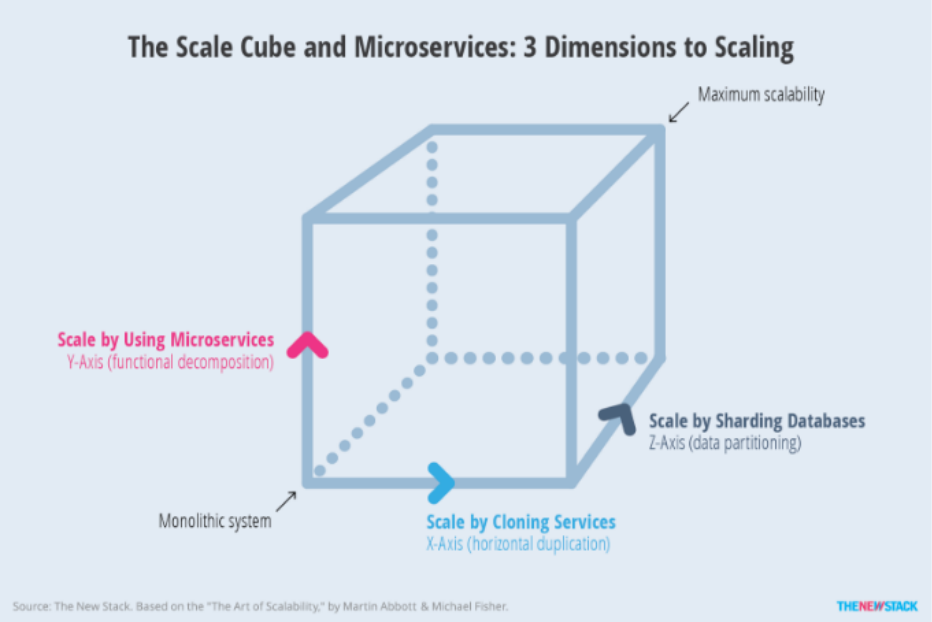



Strategies

- Create a new beginning
  - Stop Adding
  - Create standalone services for new functionality
  - Cimpress example : Document processing algo.
- Start separating front-end from application logic to back-end
  - API First mindset
  - Cimpress example : CMS approach
- Start prioritizing development for breaking into services
  - Cimpress example : Document & Logistics As A Service



3 Dimensions to Scaling



- The microservices pattern maps to the Y-axis of the cube
- Functional decomposition is used to scale the system.
- Each service can further scale by cloning (X-axis) or sharding (Z-axis).

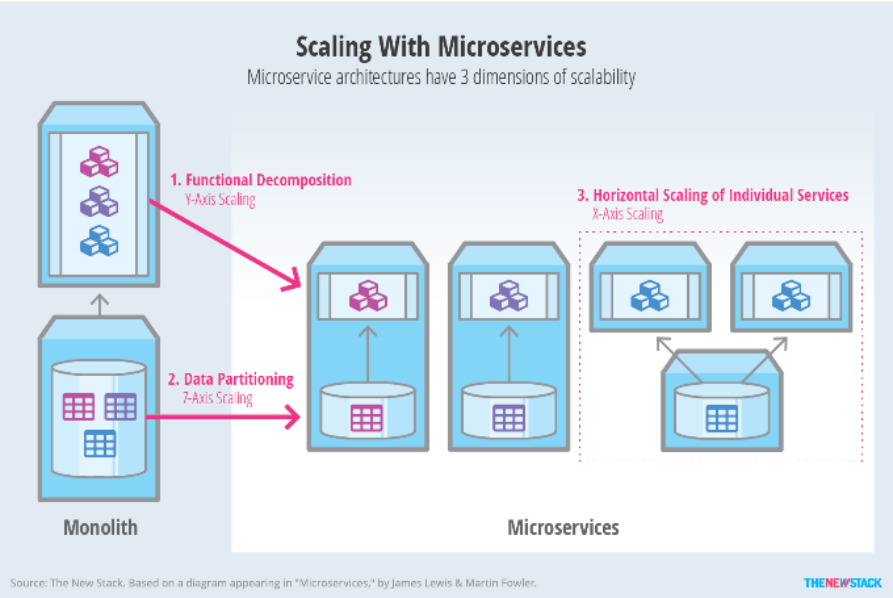
Concerns

- **Distributed Transaction**
  - Having each microservice managing its own state and data introduces architectural and operational complexity when handling distributed transactions.

- **Possibilities**
  - Good design practices, such as domain-driven design, help mitigate some of this complexity by inherently limiting shared state.
  - Event-oriented patterns such as event sourcing or command query responsibility segregation (CQRS) can help teams ensure data consistency in a distributed microservices environment.

- **How?**
  - With event sourcing and CQRS, the state changes needed to support distributed transactions can be propagated as events (event sourcing) or commands (CQRS).
  - Each microservice that participates in a given transaction can then subscribe to the appropriate event.

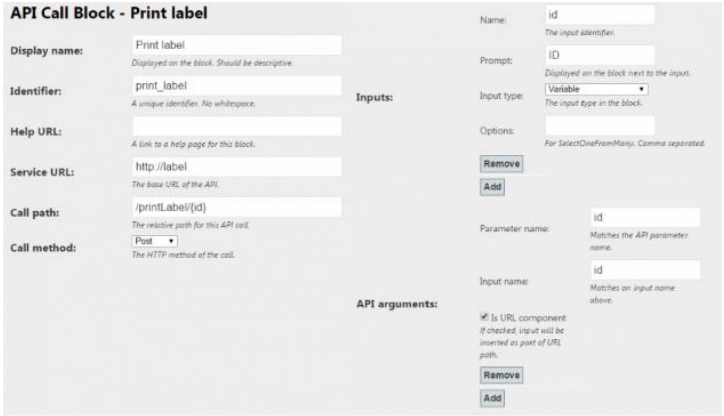
Scaling & Considerations



- Domain Modeling
  - Cimpress Example : Uploads , many more
- Service Size
  - Controversial ! Products
- Testing
  - Containerize!
- Service Discovery
- Build & Release Pipeline
- Org!

It is a learning experience!

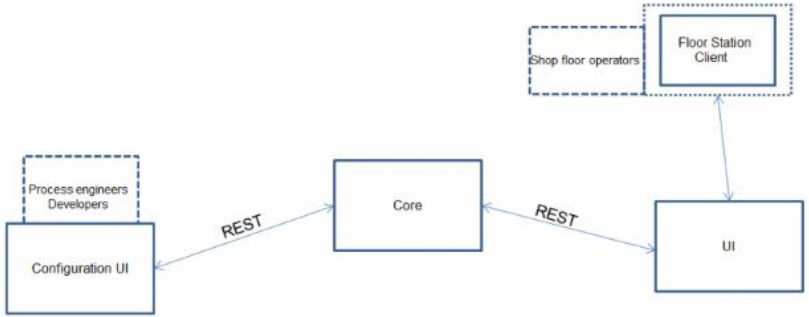
Shop floor Example



Core: The core microservice is the heart of the tool. It manages the system's resources (e.g. workflows, station configurations) in a Git repository and exposes them through its API. It also handles the actual execution of workflows.

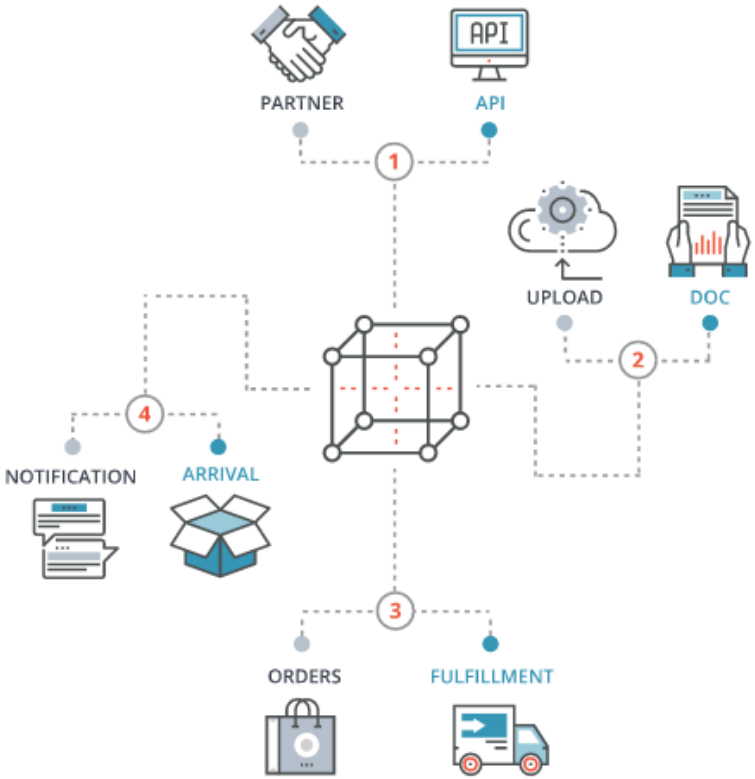
UI: The UI microservice entirely deals with floor stations. It serves web pages to operators and communicates with the core to execute workflows.

Configuration UI: The configuration UI sets up the system. It provides a website for creating and modifying workflows, station configurations, and custom blocks. It communicates with the core, which actually "owns" these resources.



Print Fulfillment API

https://open.cimpress.io/



PRINT FULFILLMENT API

HOW IT WORKS

1. **Start the partnership**
   Tell us what your business needs are, and we'll provide the product codes and details you need.

2. **Pick your product and upload your image**
   We provide a URL so you can preview before we print your selected product.

3. **Pick your delivery options**
   Submit the shipping address and how fast you want your product; we will fulfill and ship your order.

4. **Giving you control**
   We'll tell you when the order ships so you can let your customers know it's on the way. Each product arrives in an unbranded package.

Key Takeaways

- Everything is iterative, not just development
- Flexibility
- Sustainable pace
- Efficiency & Reuse
- Talent
- Technology and community

Inspiration

- https://www.nginx.com/blog/refactoring-a-monolith-into-microservices/
- https://www.infoq.com/presentations/nbc-microservices#downloadPdf
- http://www.martinfowler.com/bliki/StranglerApplication.html?utm_source=refactoring-a-monolith-into-microservices&utm_medium=blog
- http://thenewstack.io/from-monolith-to-microservices/
- http://lifeinvistaprint.com/techblog/manufacturing-workflows-blockly-microservices/