High-Fidelity Deployment of Microservices

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Thought Experiment

You might have: deployment fatigue

Common Complaints

- **Feature Lockstep:** All features under development must be deployed at the same time to any new environment
- **Feature Dysmorphia:** Features that worked on lower environments do not work on Production
- **Bug Proliferation**: New features introduce new bugs
- **Environment Failure:** Deployment of new features prevents existing users from accessing application

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Group Goals

- Select **what** features go out, and **when**
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  - Ability to test in *multiple* environments
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Problem Solving

- Feature Lockstep

- Select **what** features go out, and **when**

- **Environment Branching**

- Feature Dysmorphia
- Bug Proliferation

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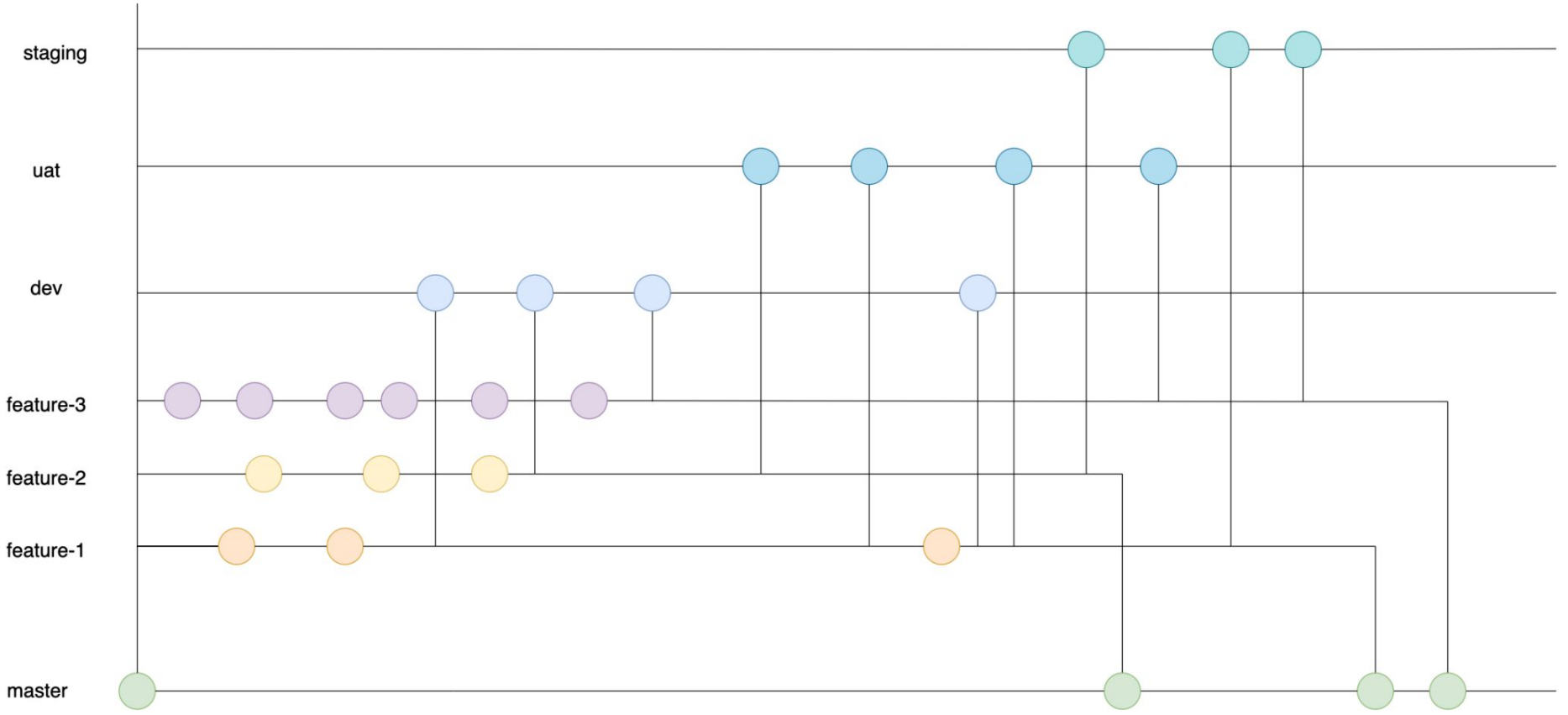
- **Canary Deployment**

- Environment Failure

- **Zero downtime** during deployment

- **Blue-Green Deployment**

Environment Branching



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Happy Confluence with our Card Workflow

Ready for Dev	In Dev	Ready for Test	In Test	Ready for PO Sign-Off	Ready for Production Deploy	Done
	dev	**uat**		**staging**	**prep**	**prod**

Why do we care?

- Ability to work on multiple cards
  - At different stages/environments of development
- Ability to choose which cards go out
- Ability to react to production issues

What are our goals?

- Reduce complexity
- Production state is the same as states on at least one lower environment
    - Testing of any state that would go to Production on lower environments

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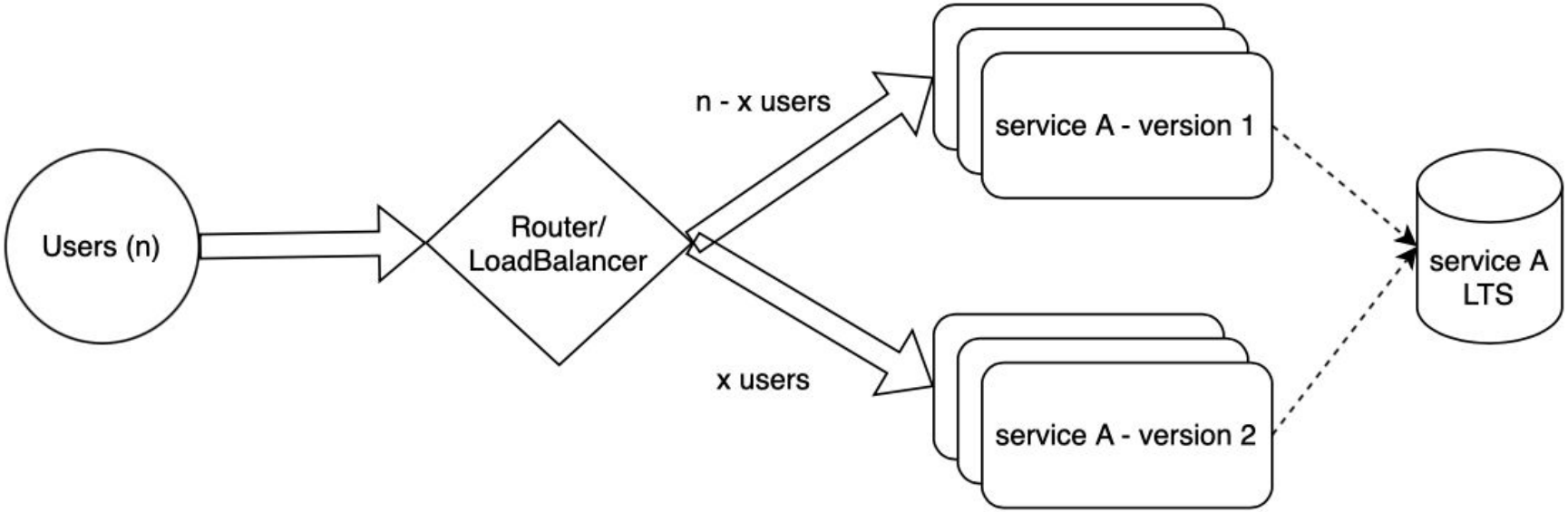
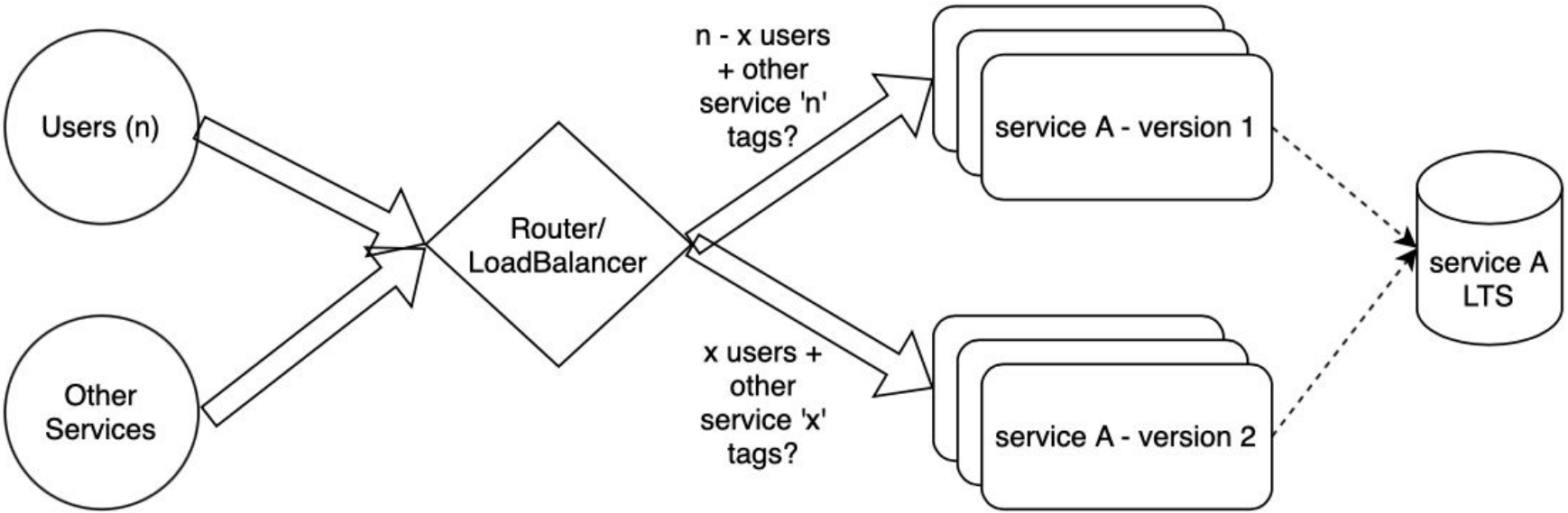
Rather than explicit Release Cycles, the Sprint Cycle is the Release Cycle

Canary (Holding) Deployment

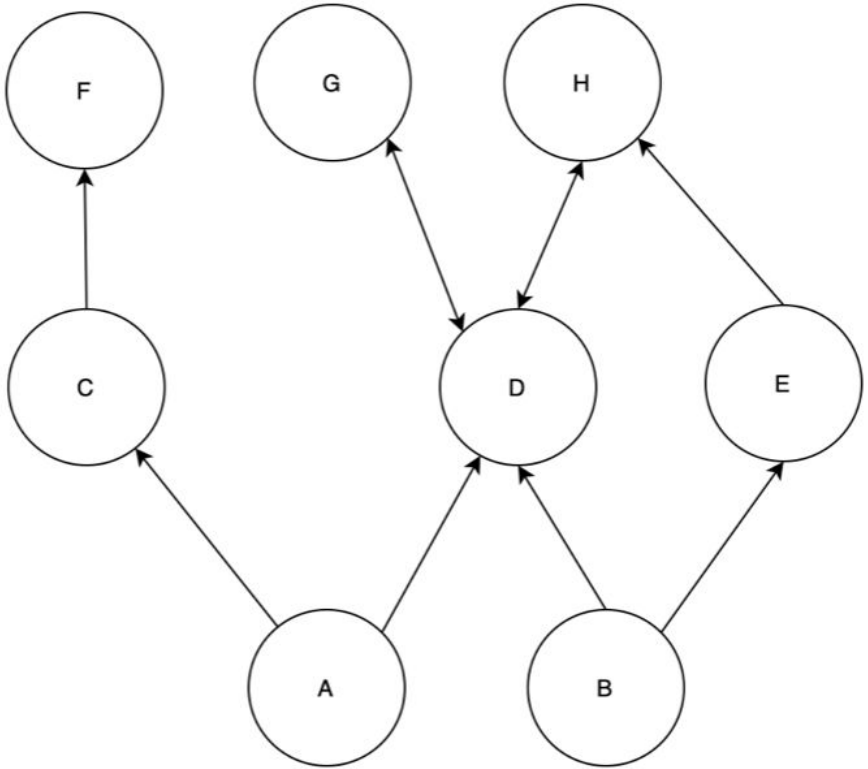
A new feature or product version is rolled out to a **subset** of users in Production



Typically, it looks like so



Problems come when you have microservices



Typical Microservice Mesh

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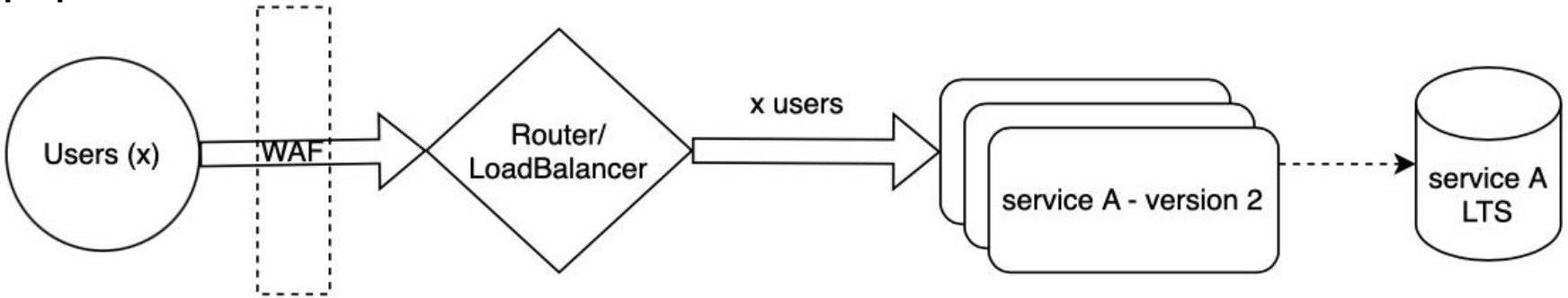
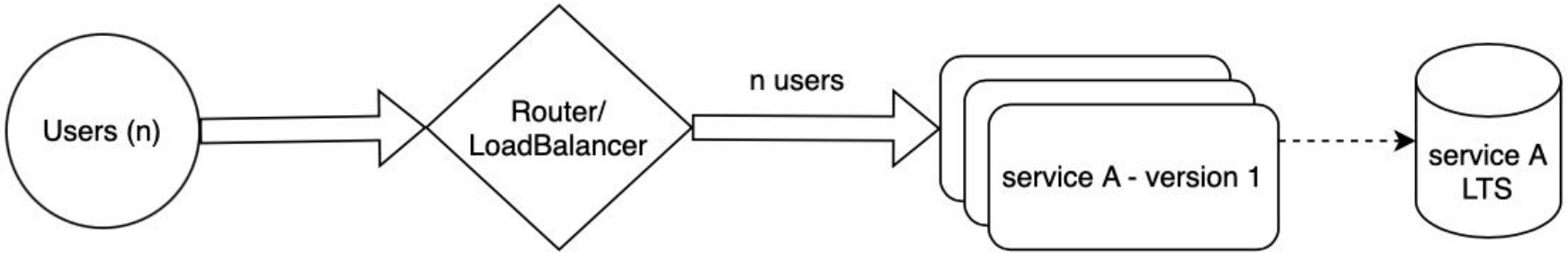
prep



prod



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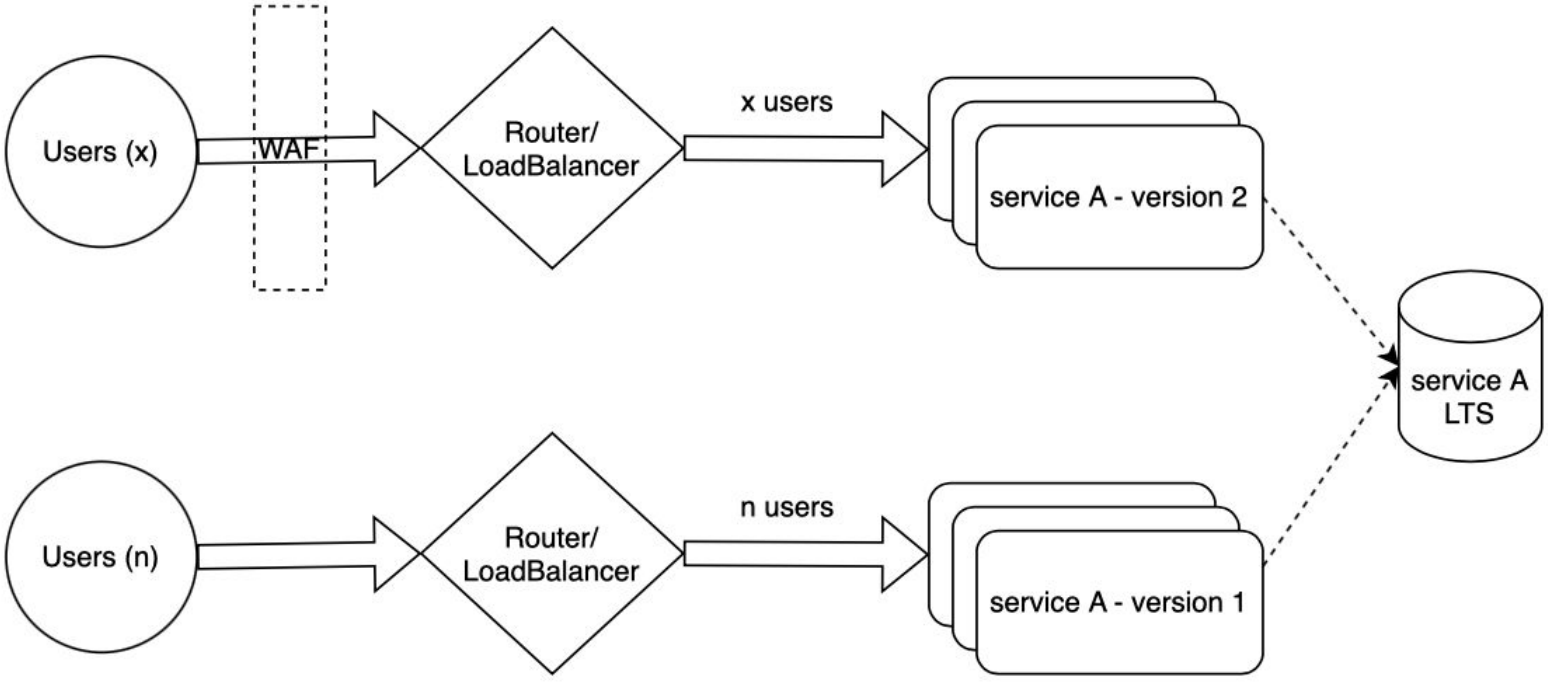
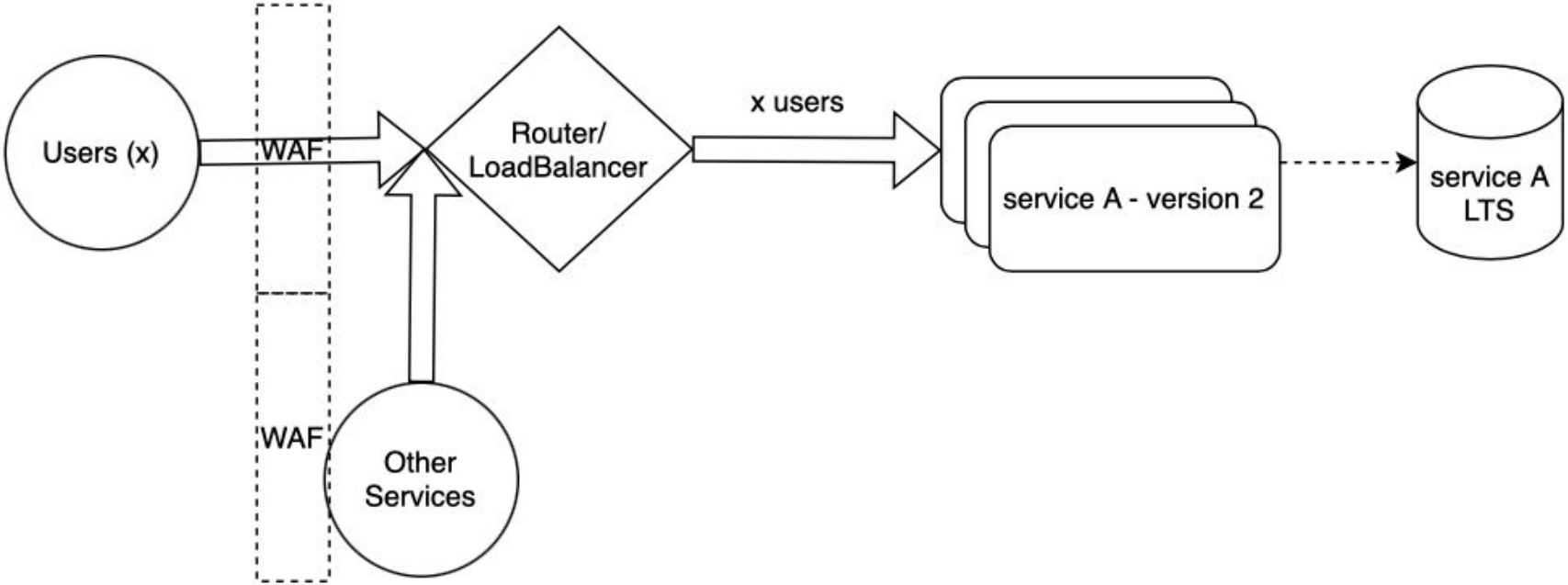
prep


Users (x)
WAF
Router/
LoadBalancer
x users
service A - version 2
service A
LTS
Users (n)
Router/
LoadBalancer
n users
service A - version 1

prod


Users (x)
WAF
Router/
LoadBalancer
x users
service A - version 2
service A
LTS
WAF
Other
Services

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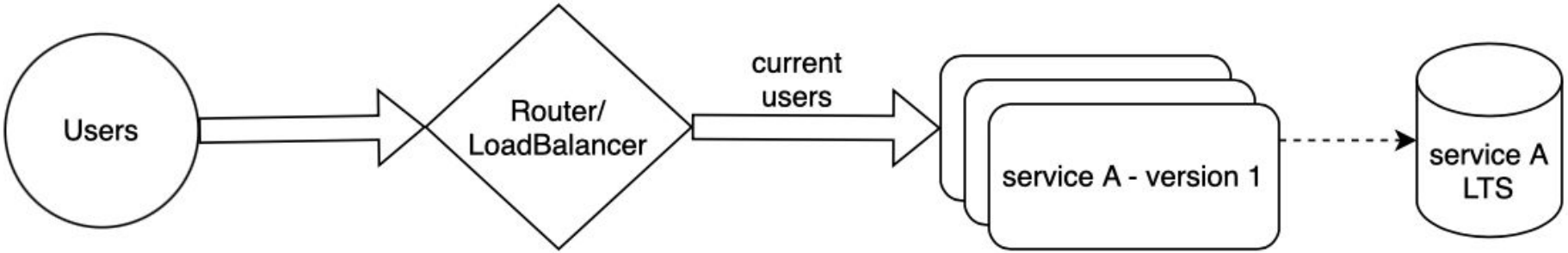
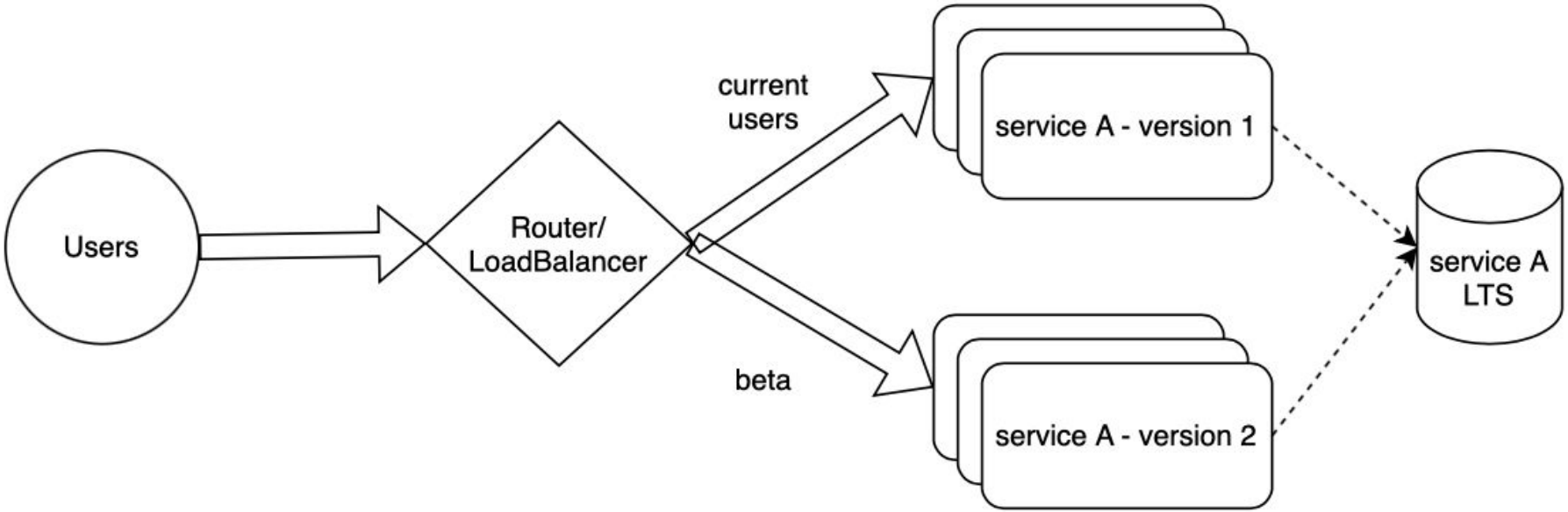
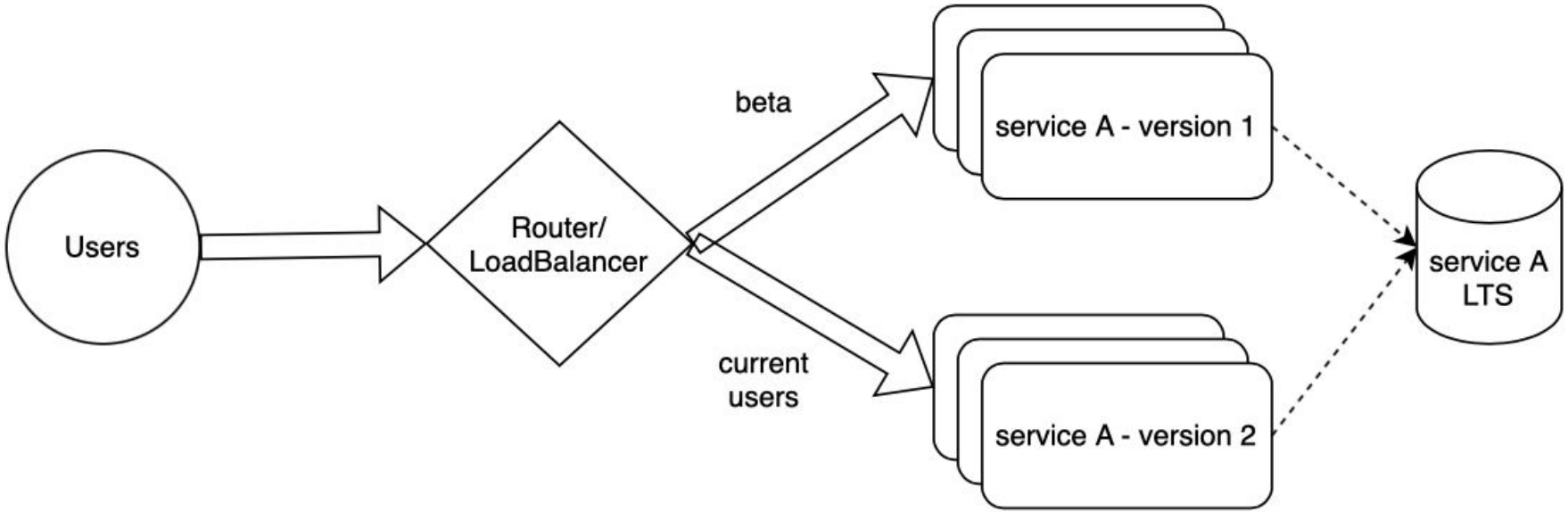
Blue-Green Deployment



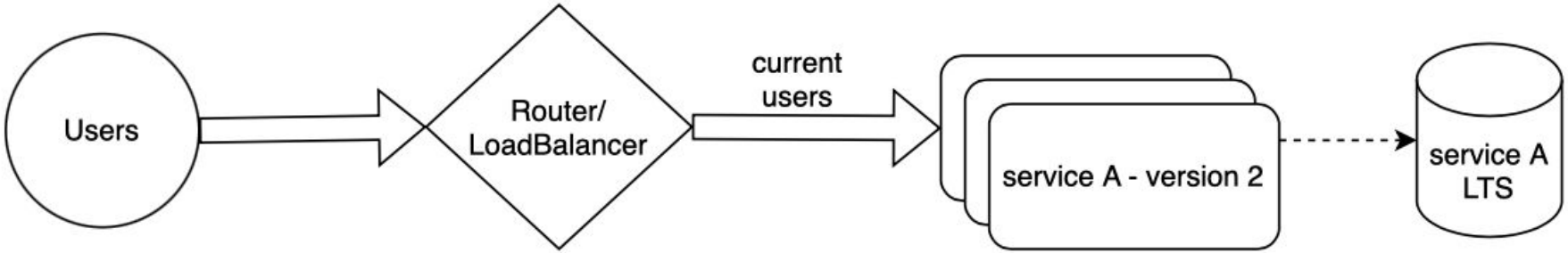
Start with your original load



Deploy a new stack, hook up with live load balancer



Swap routing



Delete previous stack

Blue-Green Lifecycle

From A to Z

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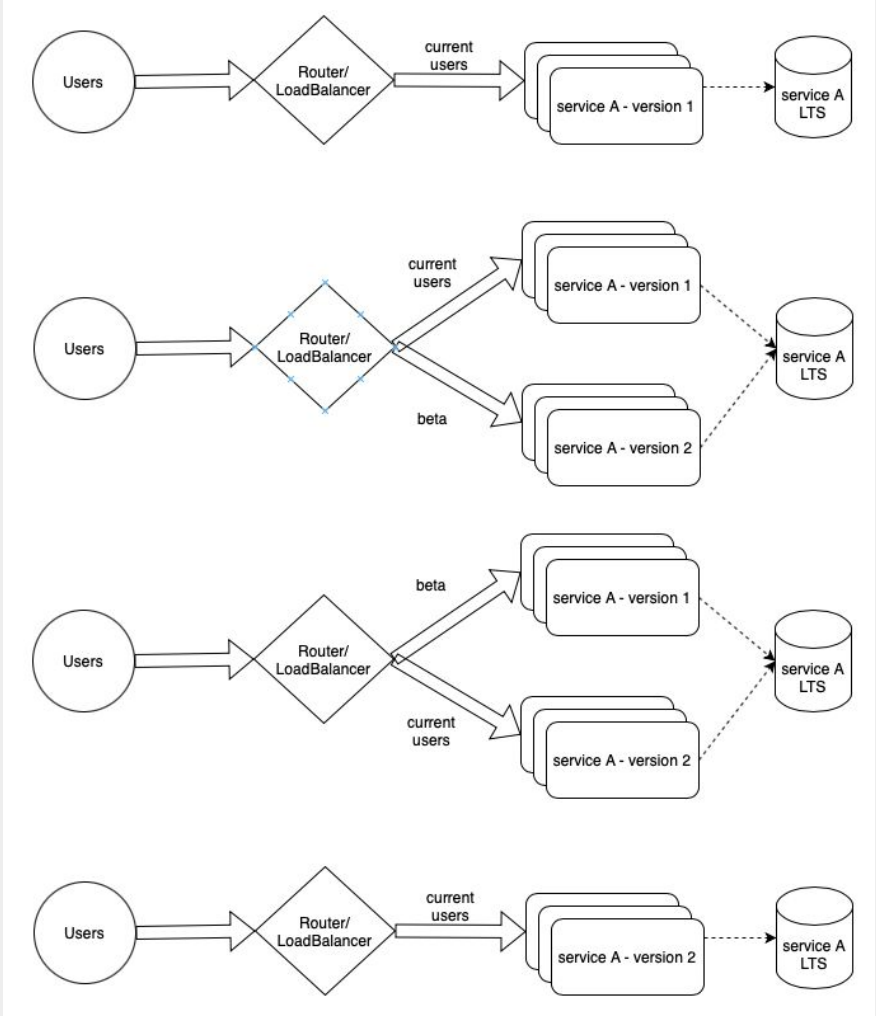

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Acknowledgements

Behind every presentation is a team.

My bosses Steven, Chris and Saiful for providing the opportunity to tackle these questions.

My team, Dashboard in GoBusiness for working through these problems alongside me.

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That’s it, folks

Questions?

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Samantha Wong on LinkedIn.