

Racing Thru the Last Mile

Cloud Delivery & Web-Scale Deployment

Qcon London 2013

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My 3 Bullet Point Résumé

- **Been in software for a while**
- **Worked on a bunch of different systems**
- **Worked at a bunch of different places**



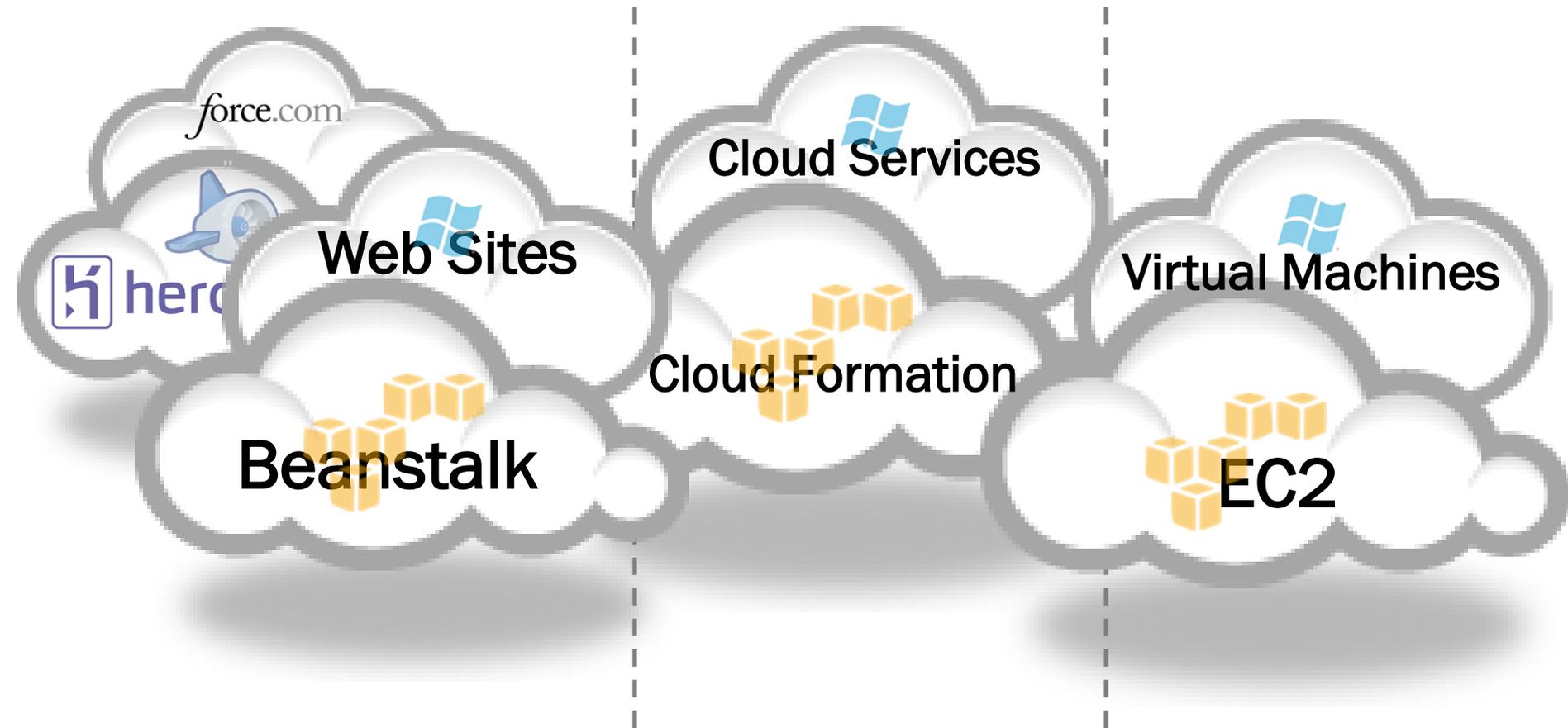
...because it's more than just code.



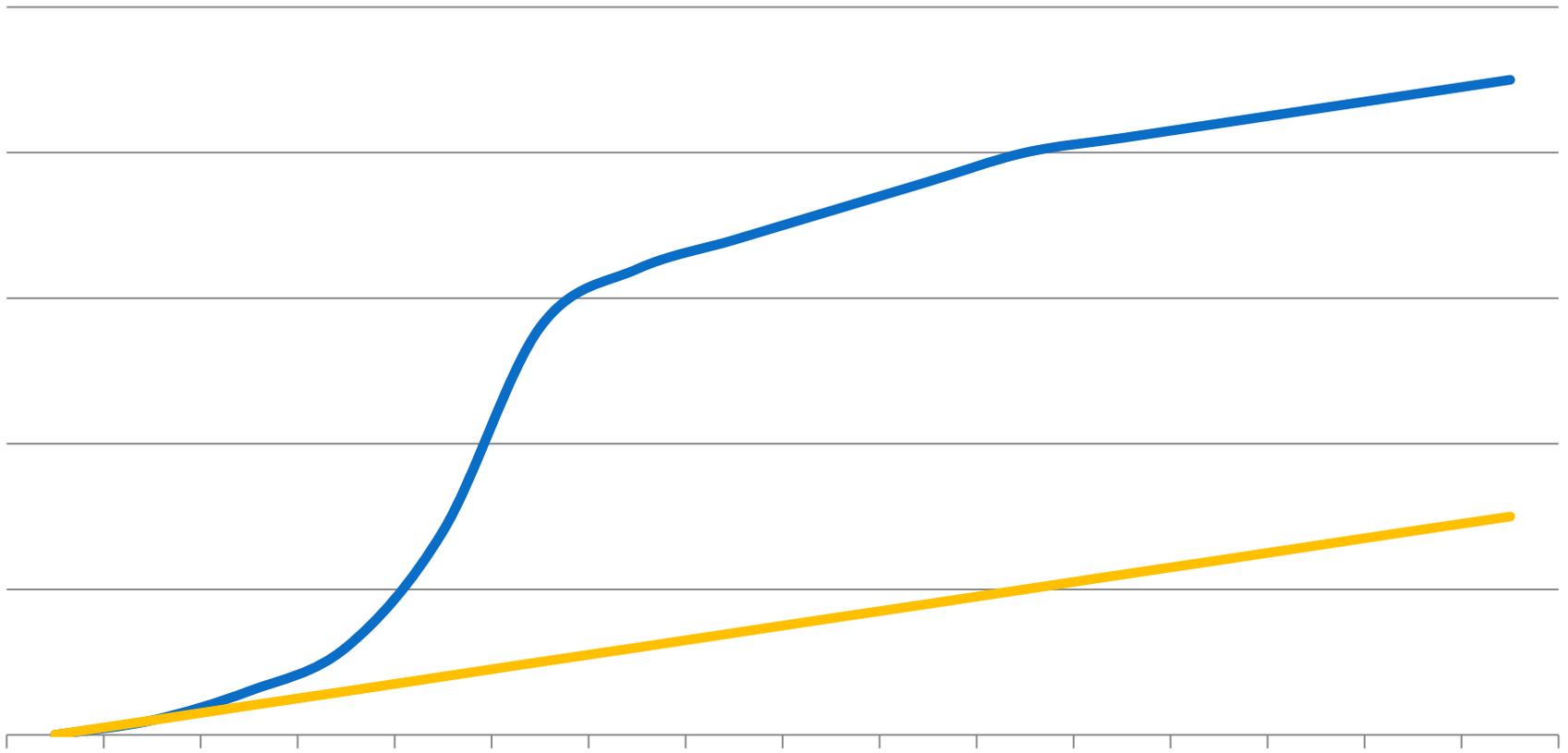
- **I founded**
- **BuildMaster**
 - “DevOps in a box”
- **ProGet**
 - “NuGet for the enterprise”



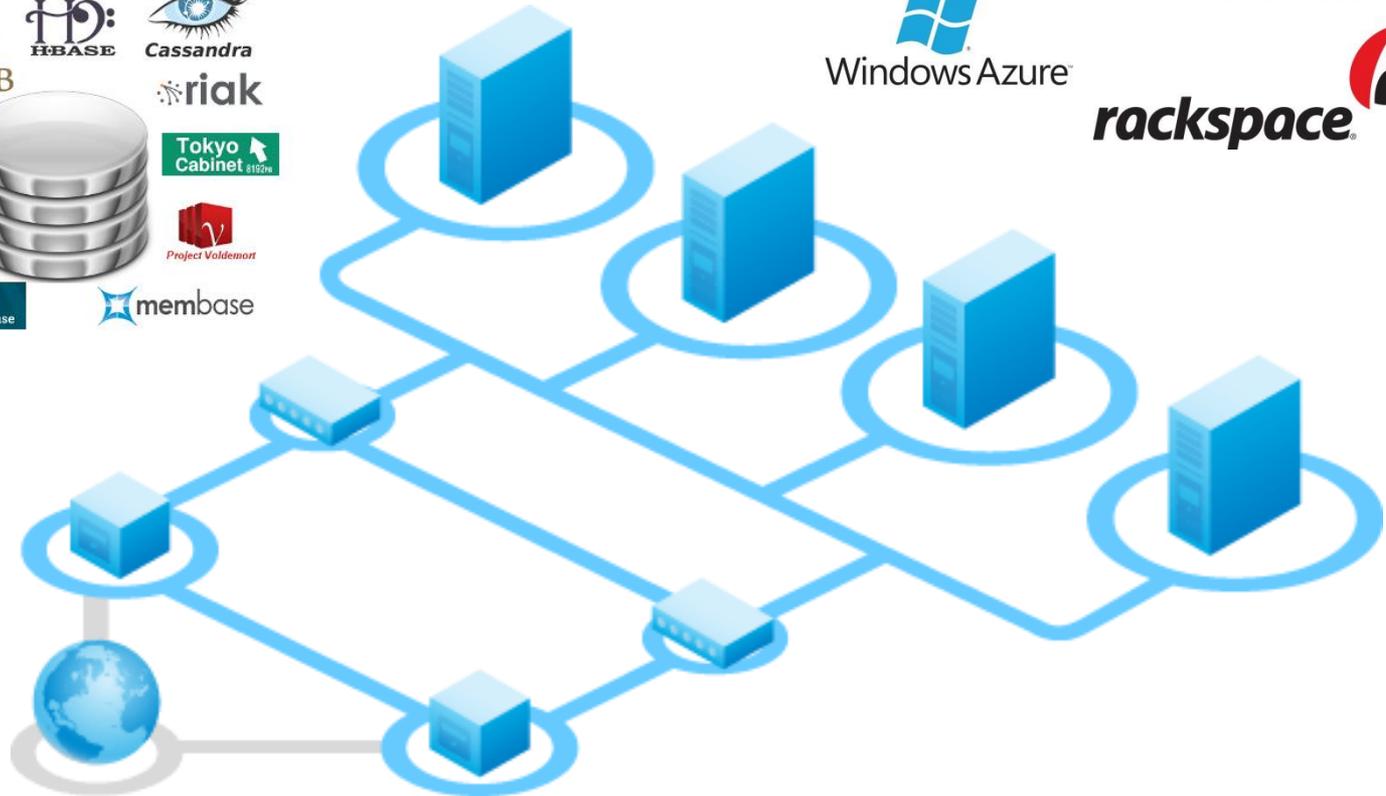
What is the Cloud?



What is Web Scale?



What is Web Scale?

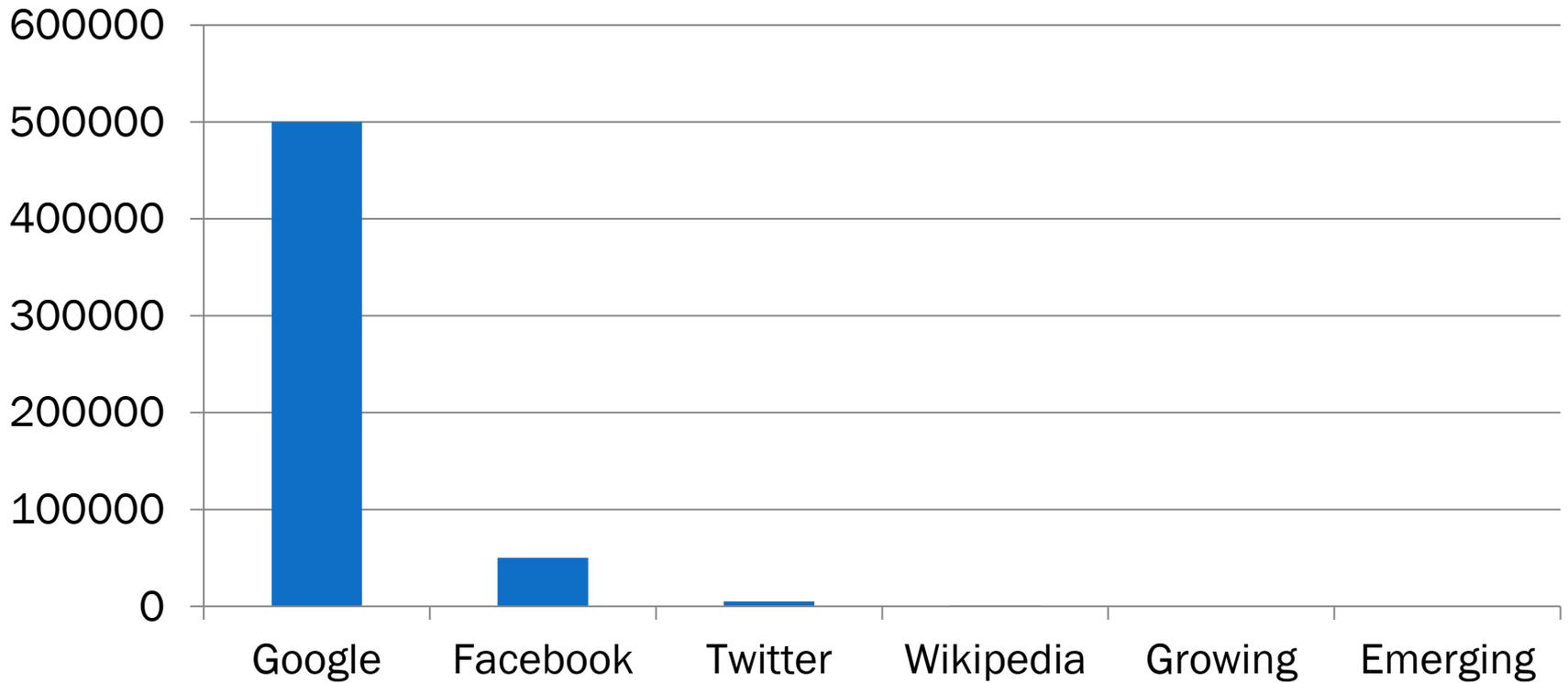


What is Web Scale?



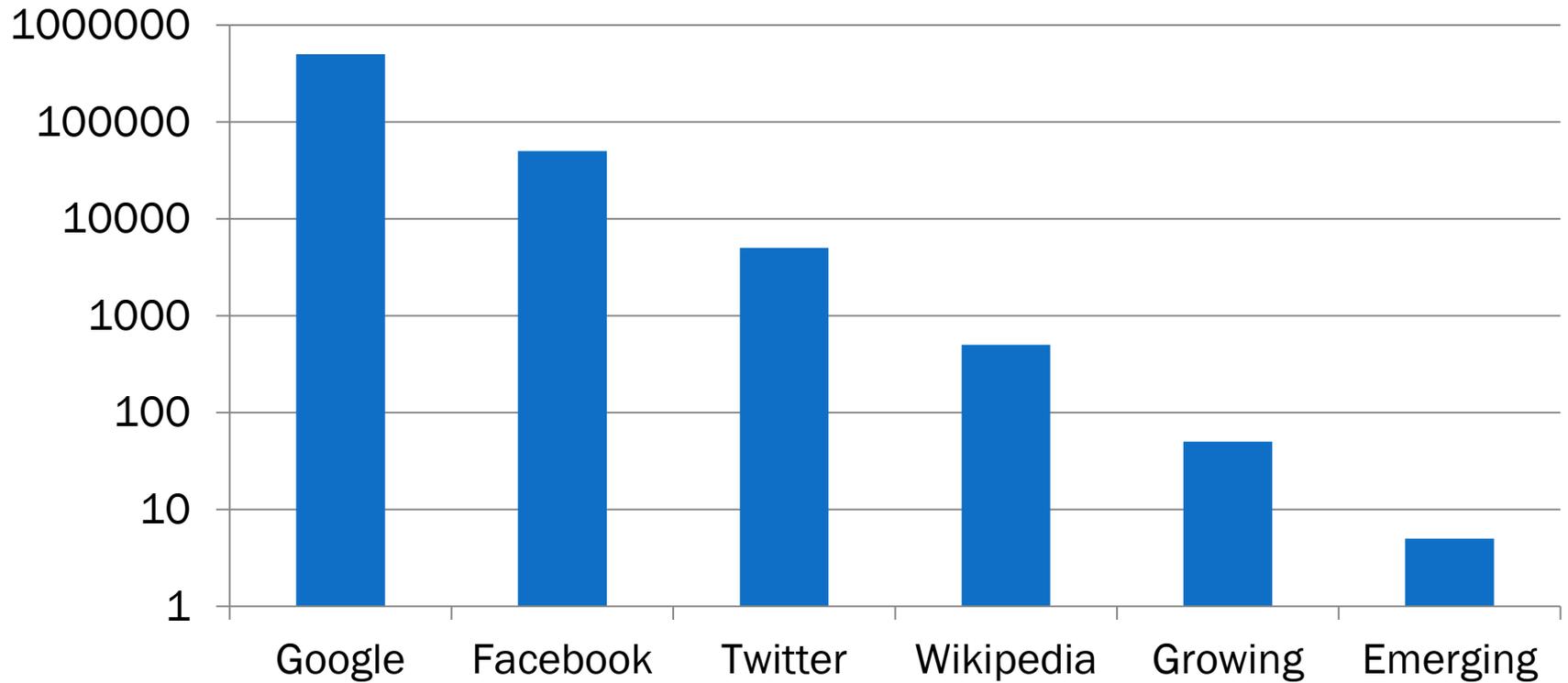
Scale of Web Scale

Number of Servers

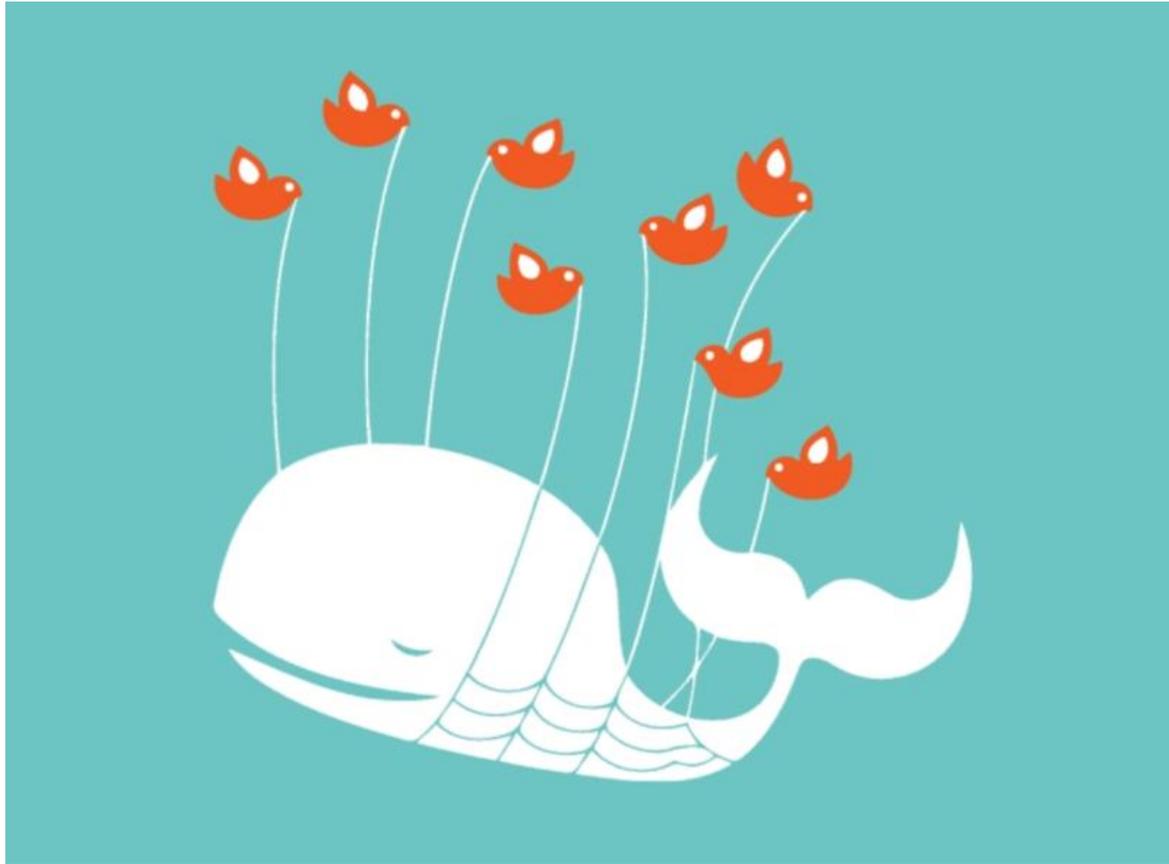


Scale of Web Scale

Number of Servers



Deployment Matters



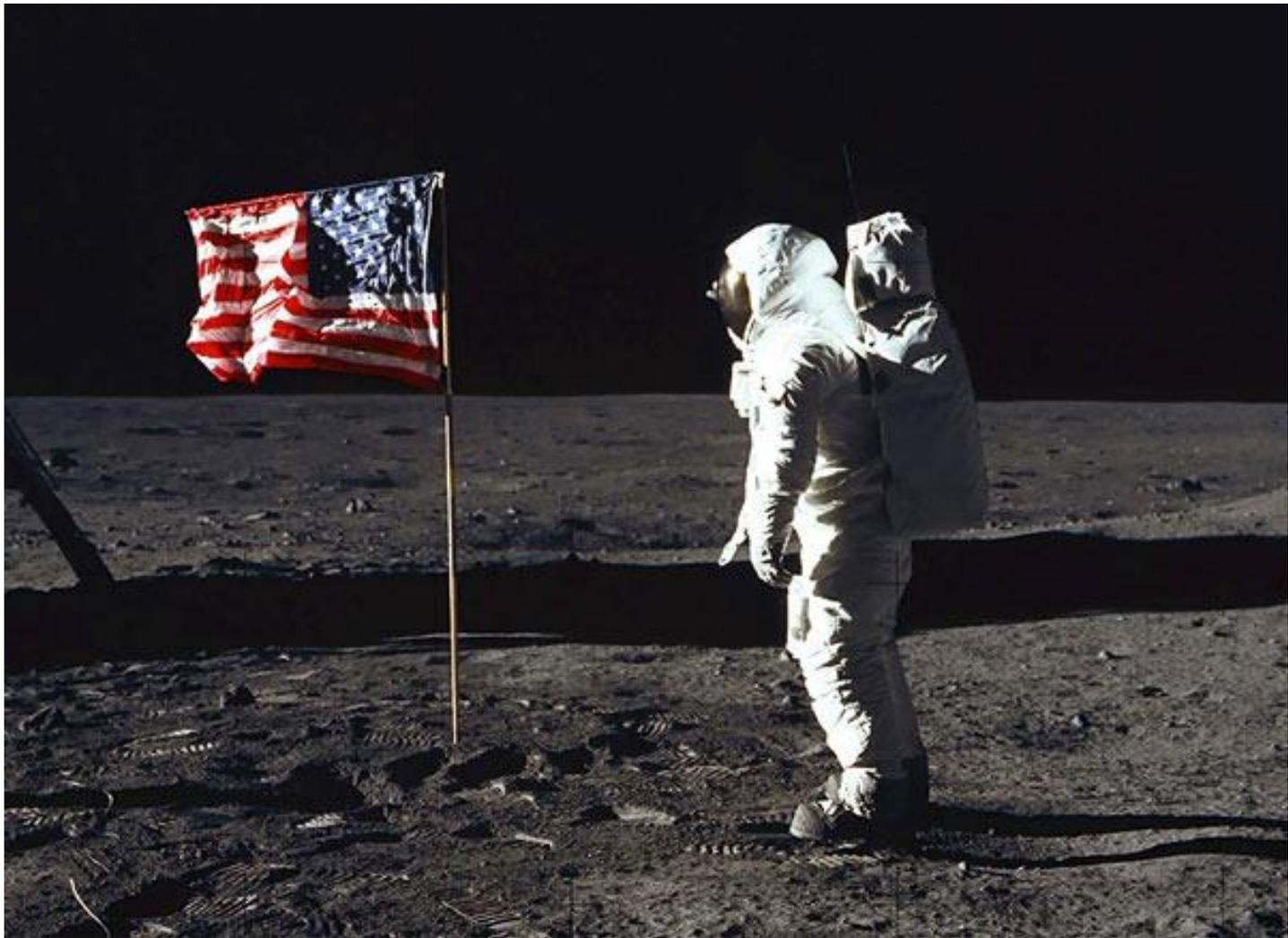
Web-scale Deployments

- **Fast**
- **Often**
- **Reliable**

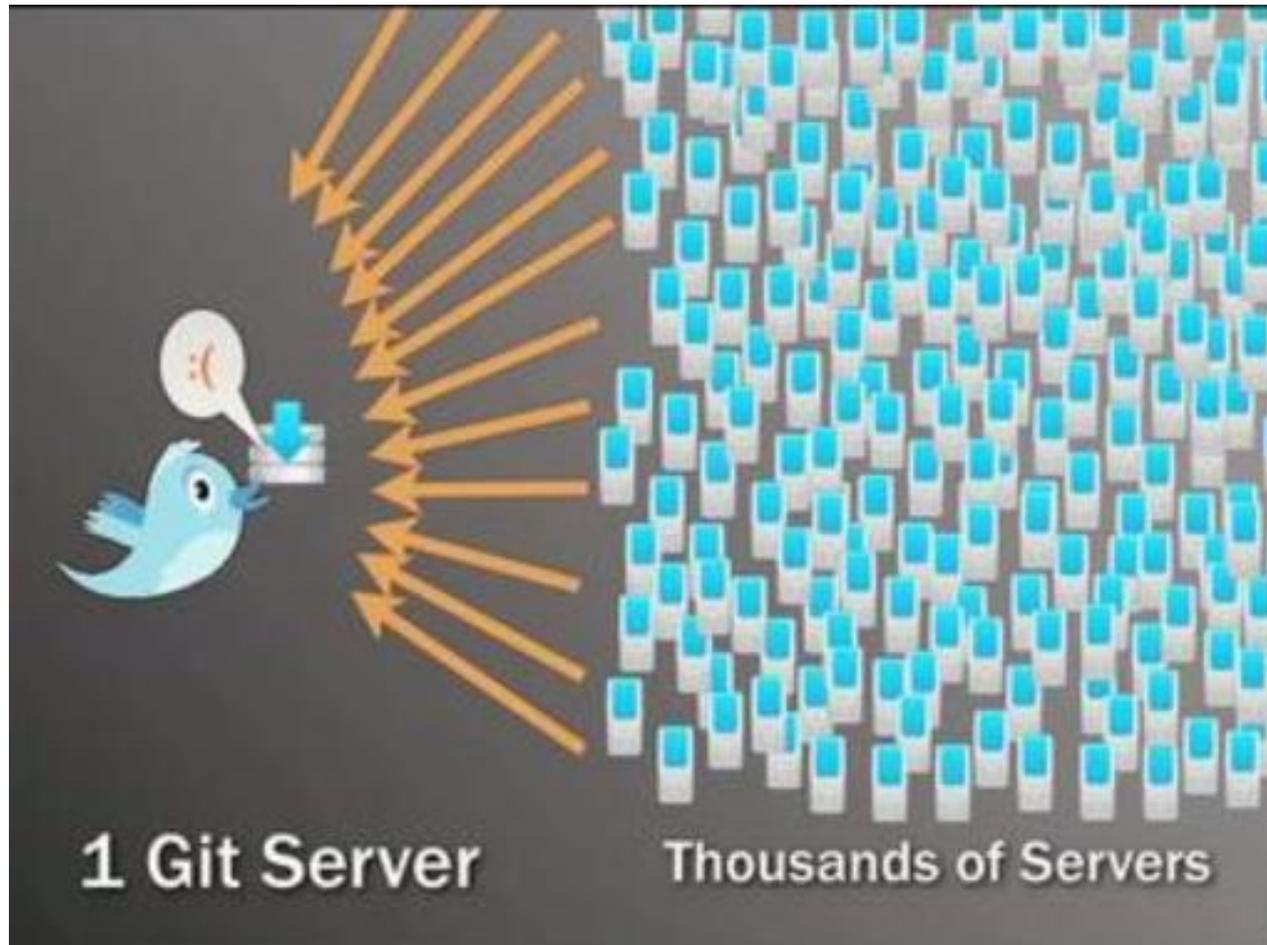
Google's Secret Weapon

- **Same as Facebook**
- **Same as Twitter**





Twitter's Murder









Applications

Services

Auth

CDN
Proxy

Data
Access

API

User
Account

User Files

Web

Logon

Search

Uploader

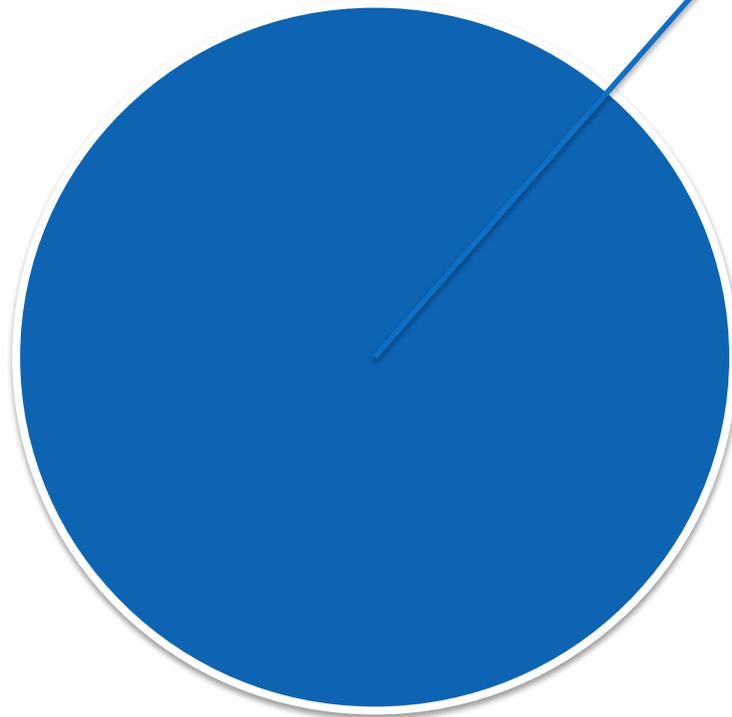
Environments



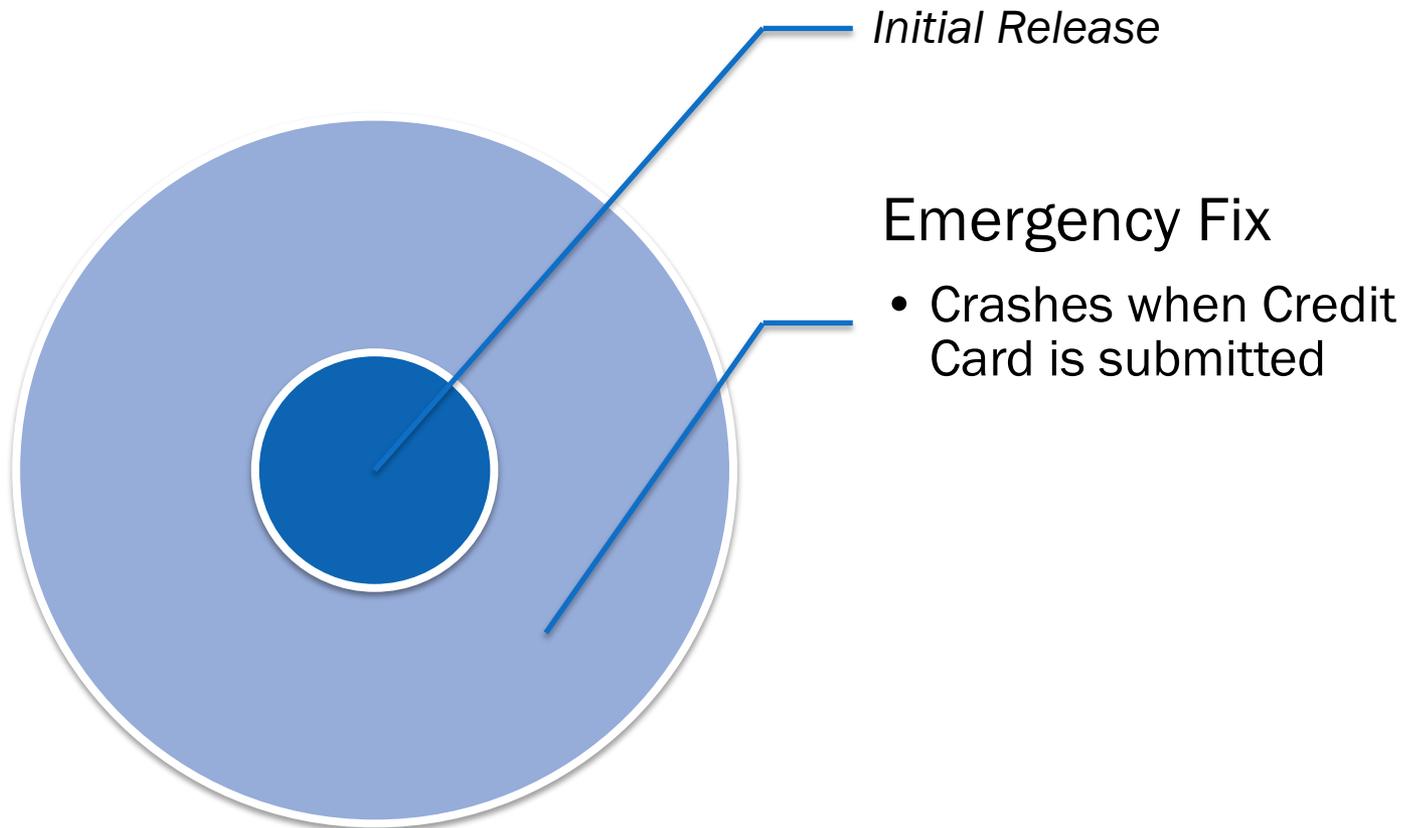
Releases

Initial Release

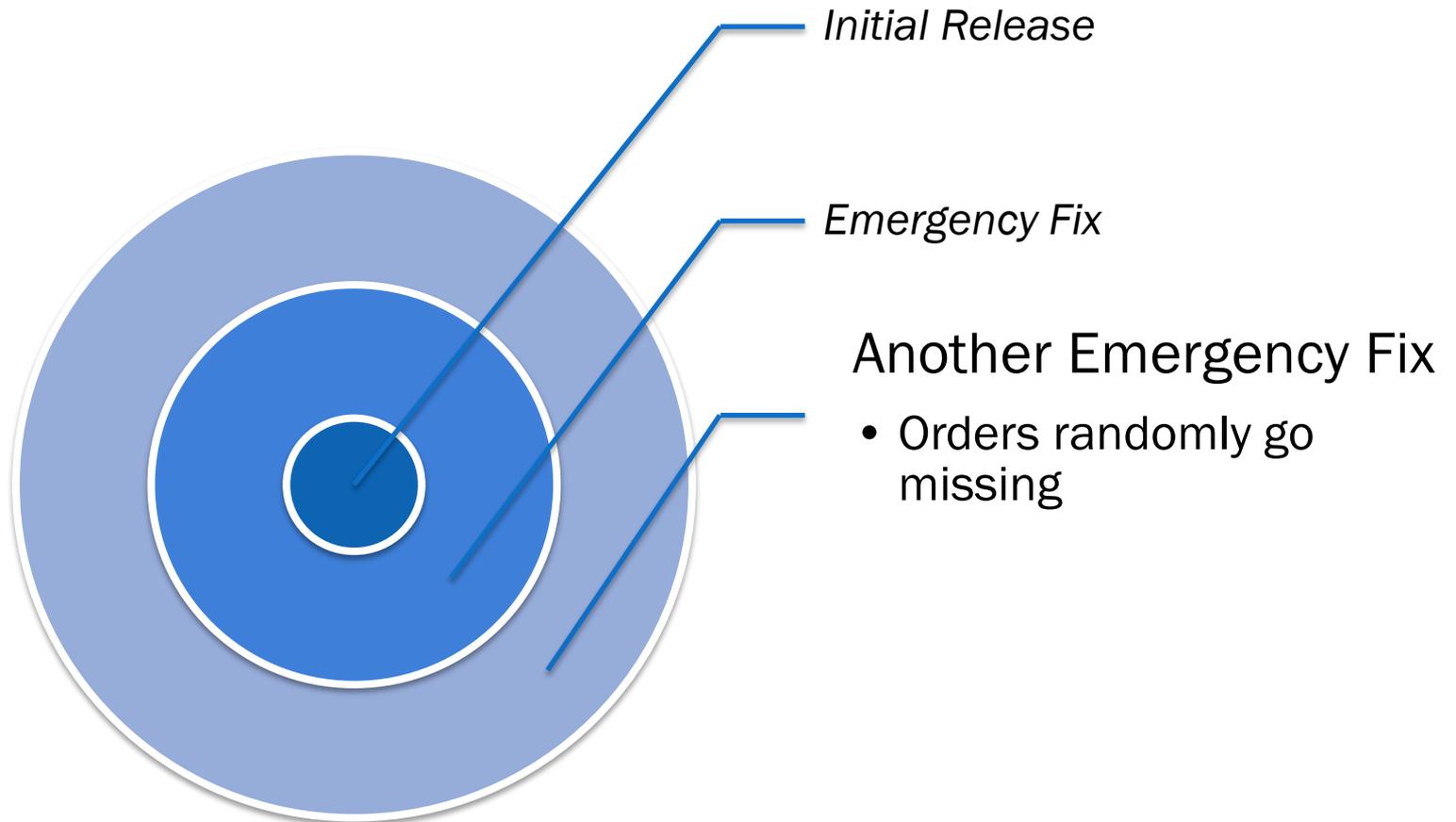
- Perfect



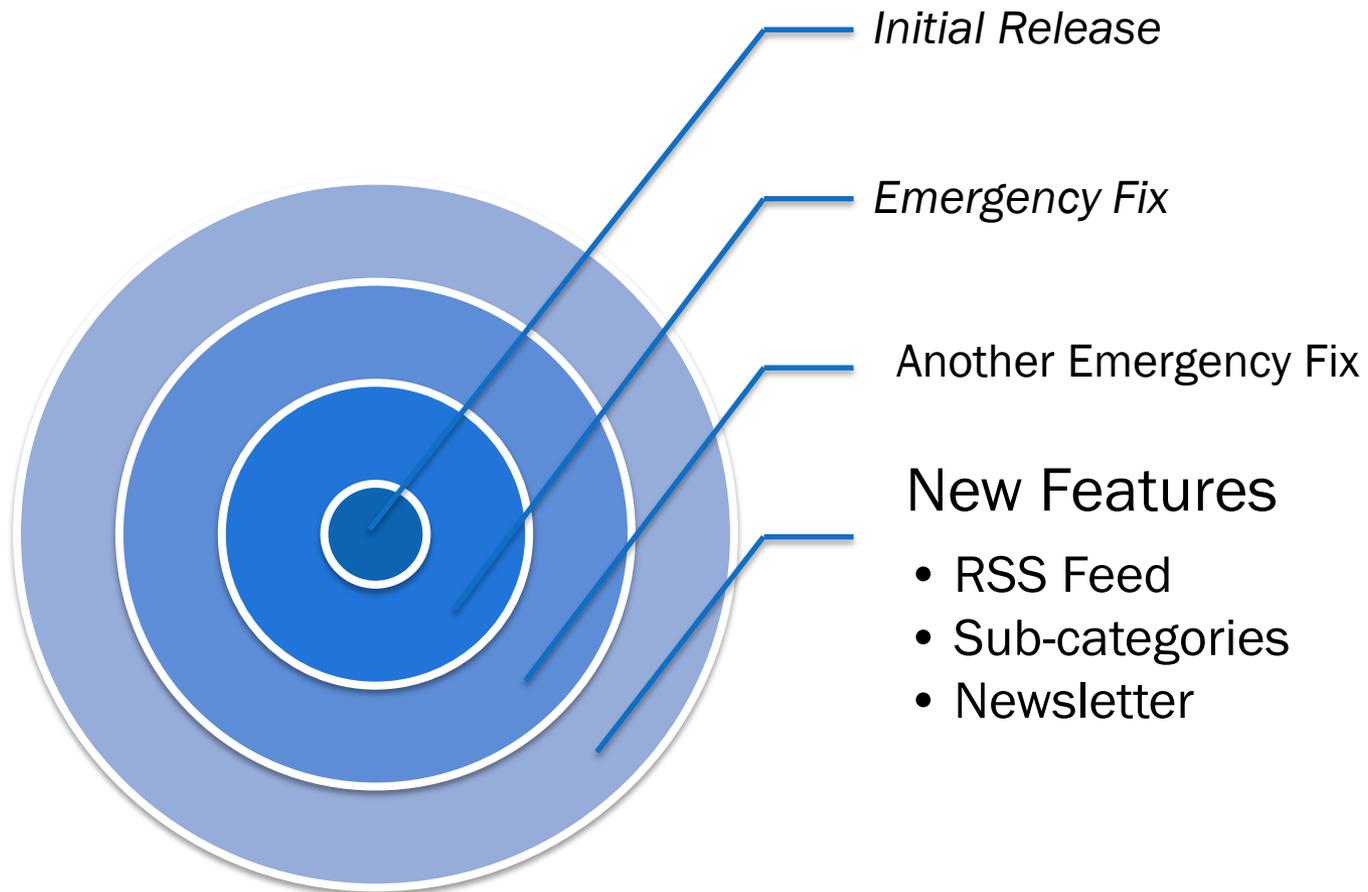
Releases



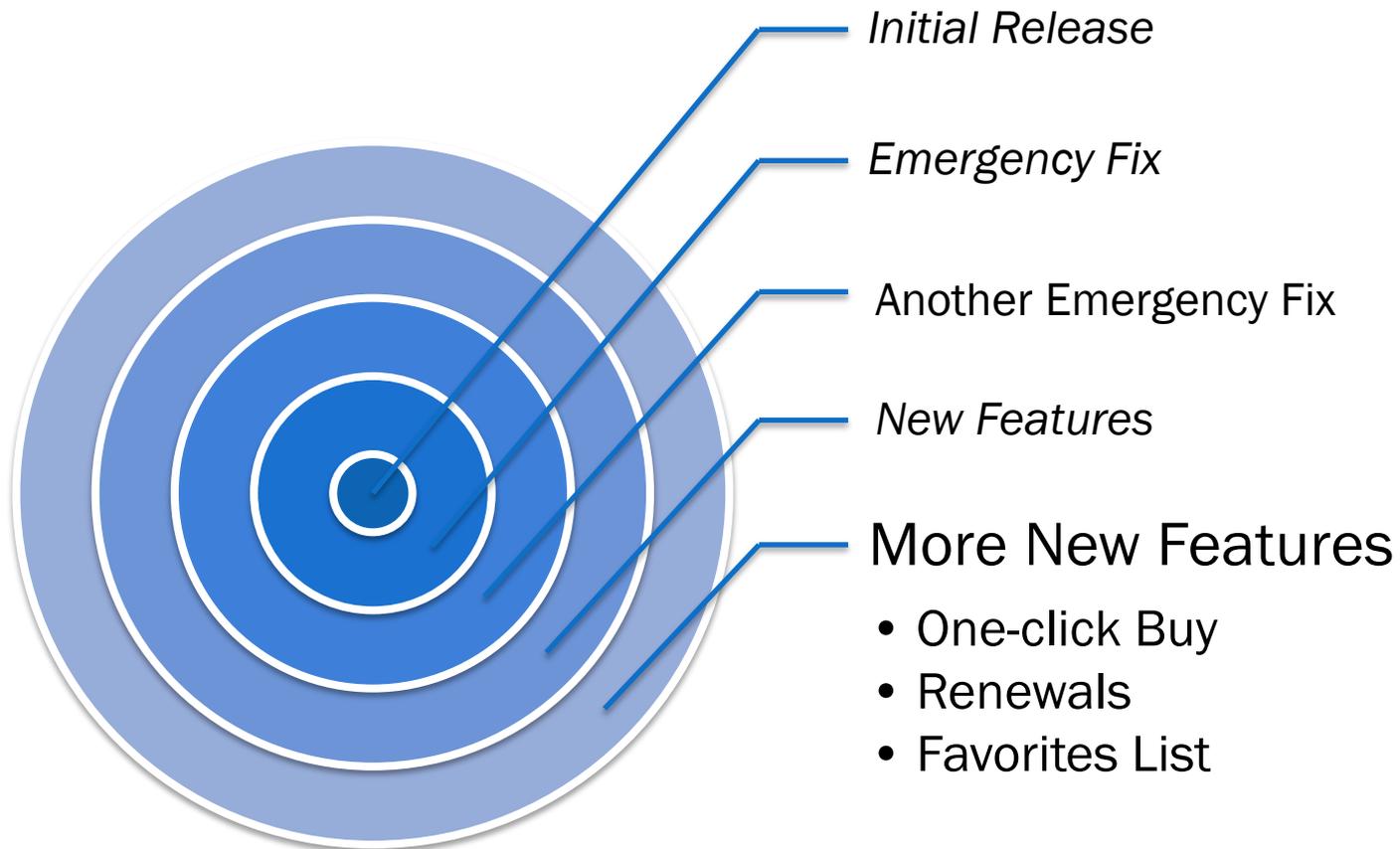
Releases



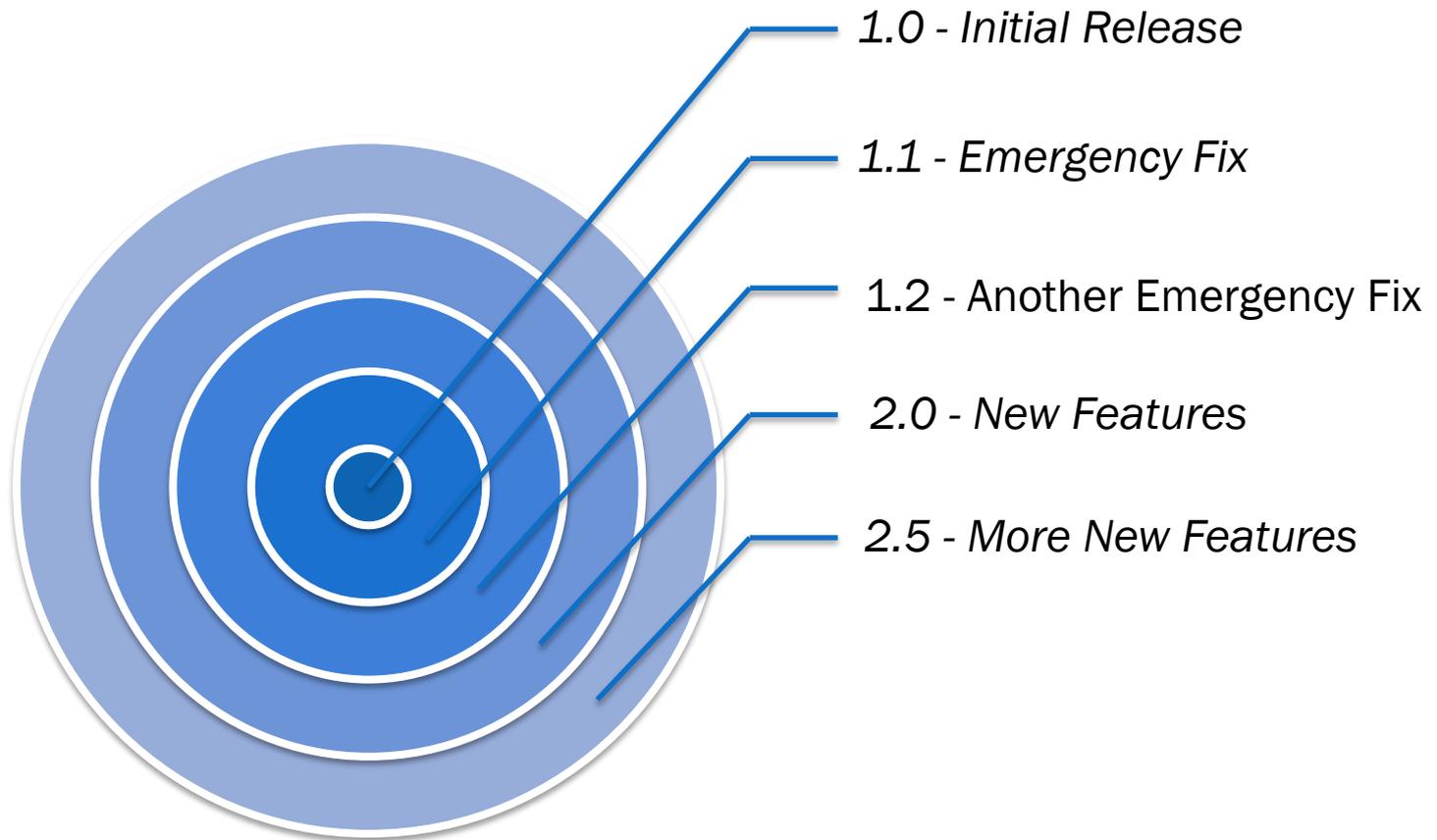
Releases



Releases



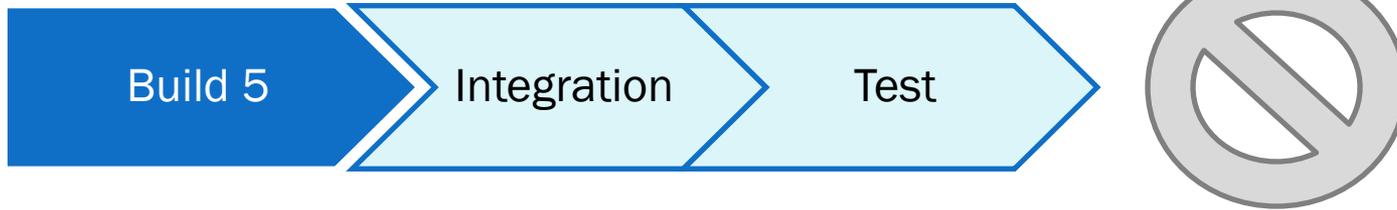
Releases



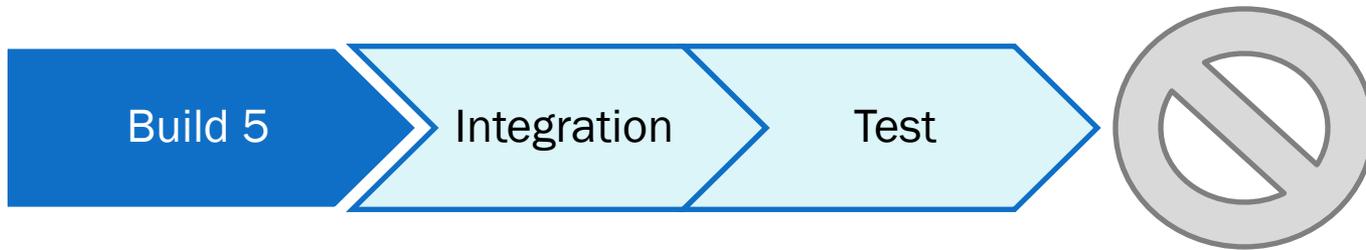
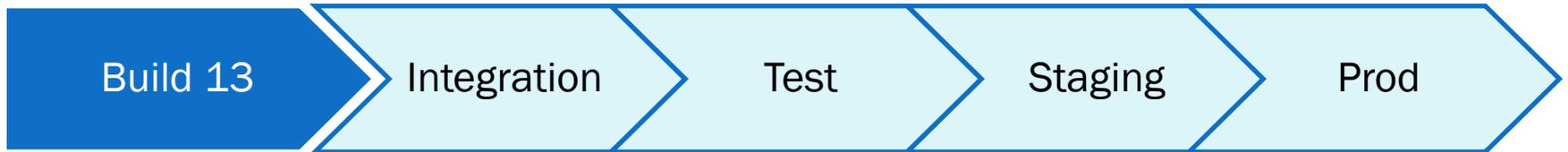
Builds



Builds



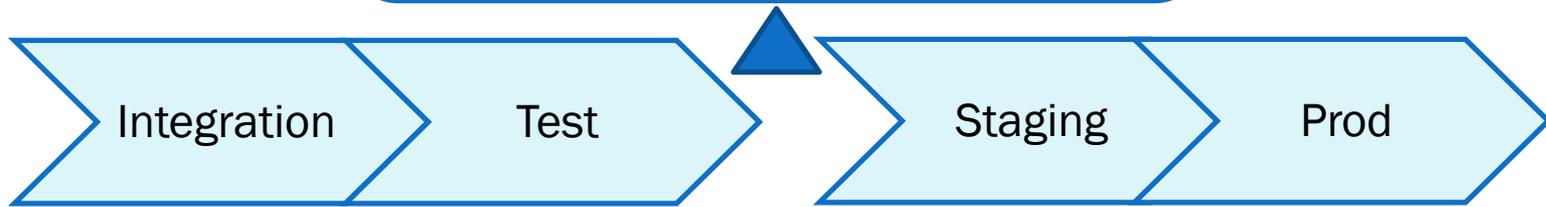
Builds



Promotions

Before Staging:

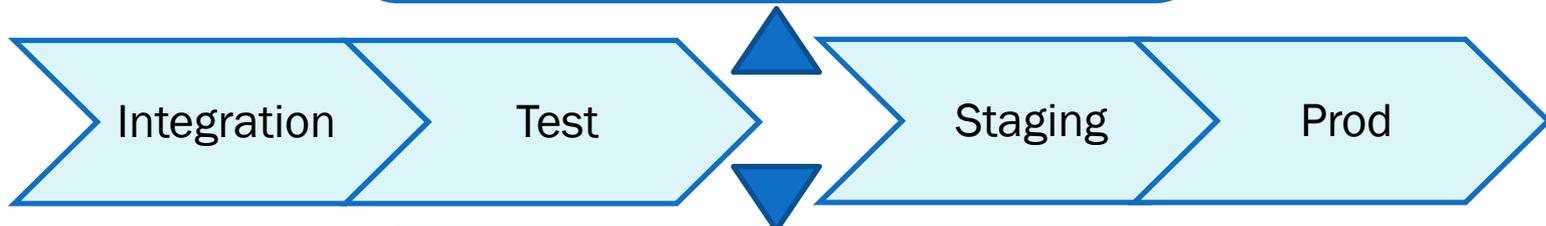
- Automated Acceptance Test Passed
- Manual Smoke Test Passed
- Release Issues Resolved



Deployments

Before Staging:

- ✓ Automated Acceptance Test Passed
- ✓ Manual Smoke Test Passed
- ✓ Release Issues Resolved

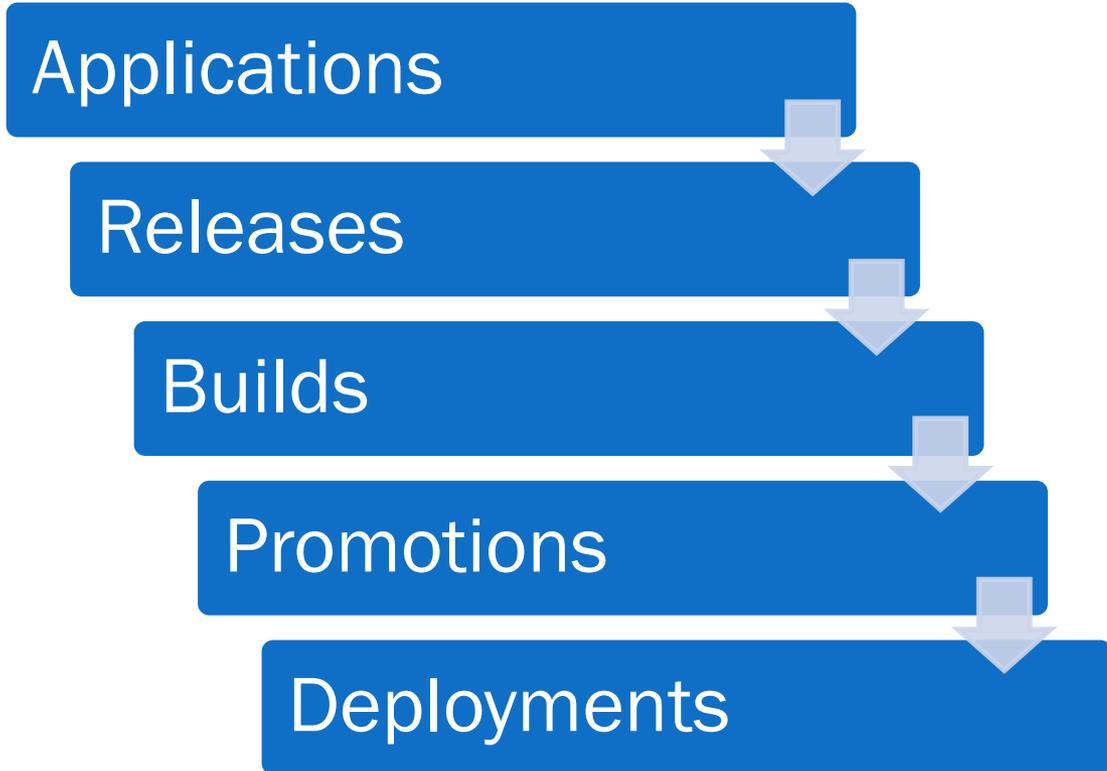


Staging Deployment:

1. Transfer Files to tmpDir
2. Stop Web Services
3. Swap tmpDir and liveDir
4. Start Web Services

Common Terminology

Applications



```
graph TD; Applications --> Releases; Releases --> Builds; Builds --> Promotions; Promotions --> Deployments;
```

Releases

Builds

Promotions

Deployments

Deployment

Distribution

Delivery

Abstracting Delivery



Deliverables

- **Files**
- **Database**
- **Environmental**

File Components

- **Staging Directory**
- **Changed Files Only**
- **Assets on CDN**

Database Components

- **Can't Rollback**
- **Backwards Compatibility (Deploy First)**
- **Test via Staging**

Environment Components

- *Really* can't rollback
- Minimize
- Application-only

Delivery Mechanism



Push Basics

```
servers = ["appsv1", "appsv2", "appsv3"];  
  
for each (s in servers) {  
    transfer_files(s);  
    copy_config_file(s);  
    deploy_database(s);  
    set_environment(s);  
}
```

Pull Basics

There are no basics

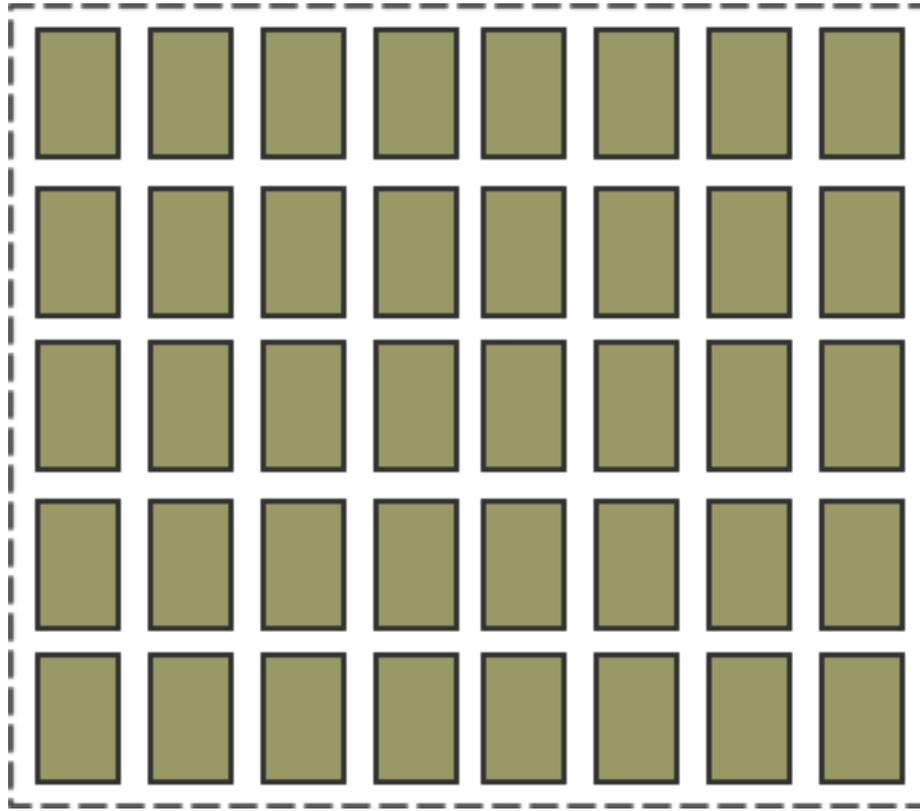
Pull Challenges

- **Instruction Complexity**
- **Orchestration**
- **Monitoring**

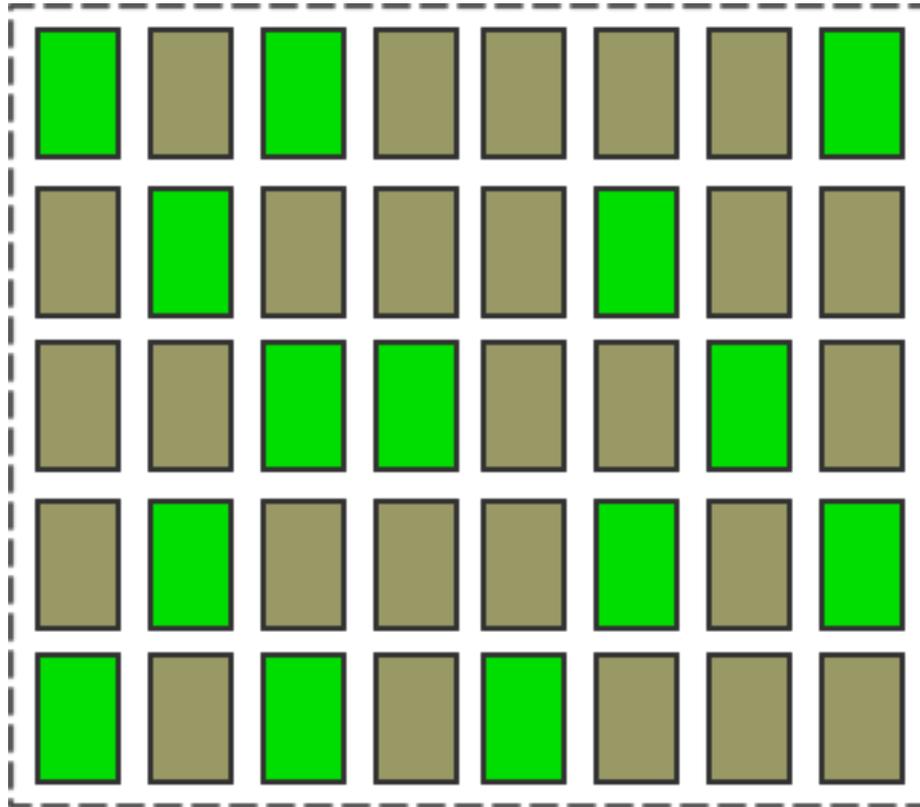
Pull Helpers



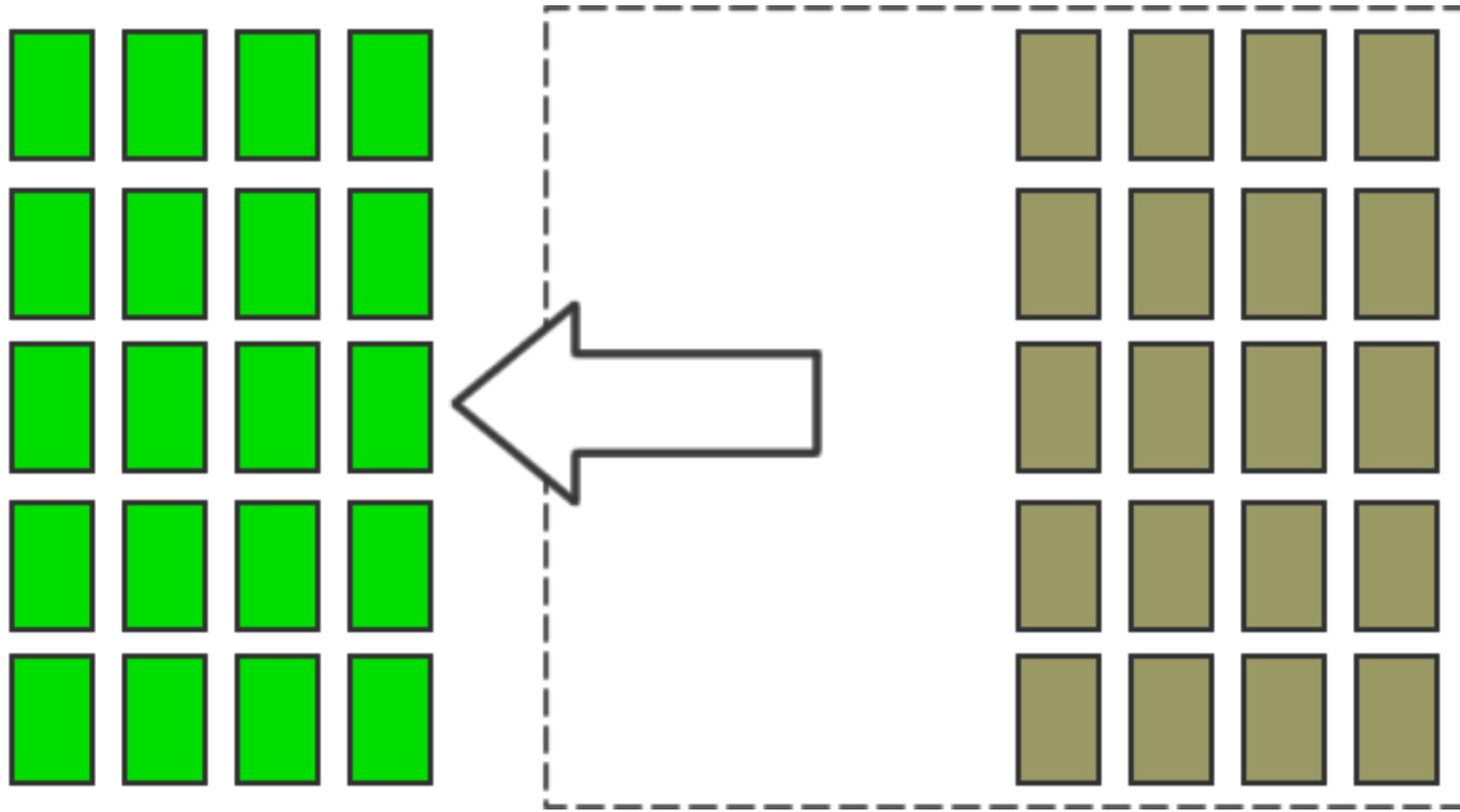
Rollout Techniques



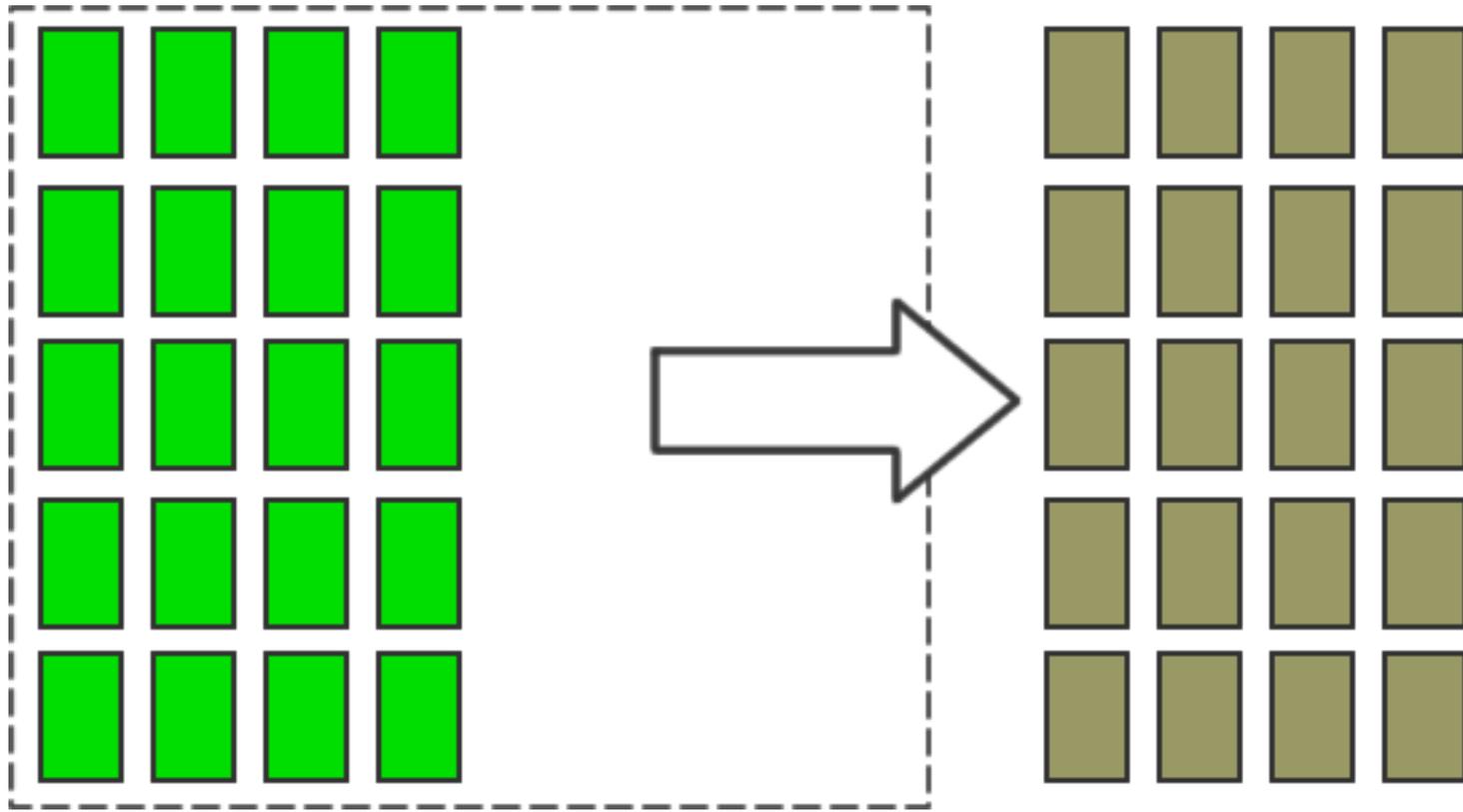
Live



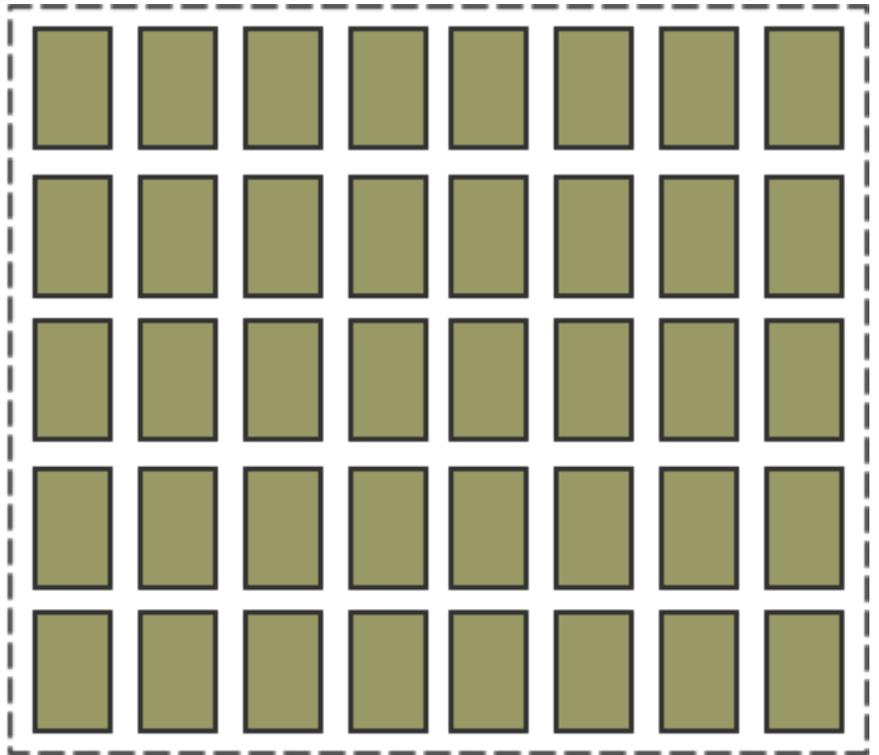
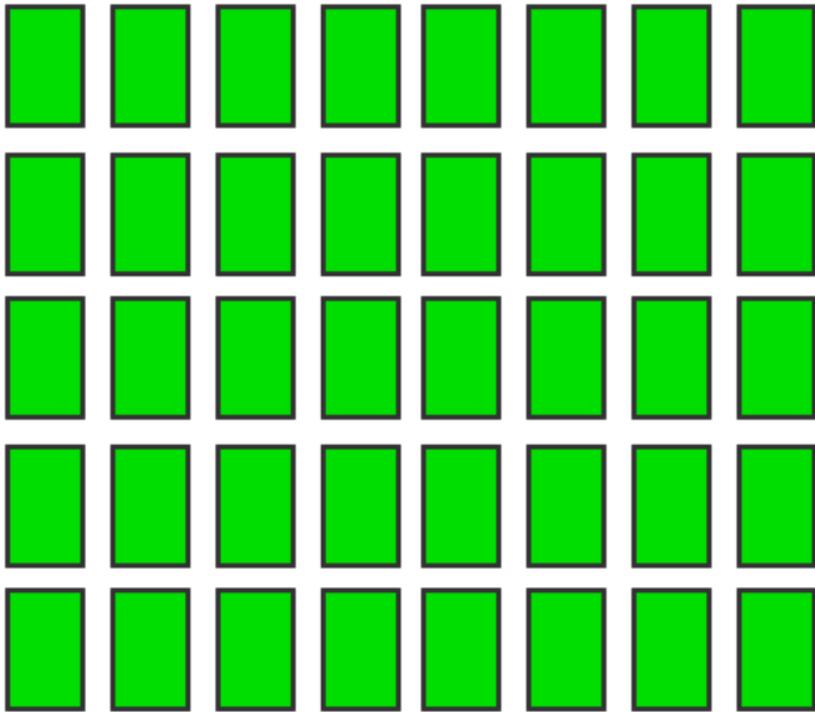
Rolling



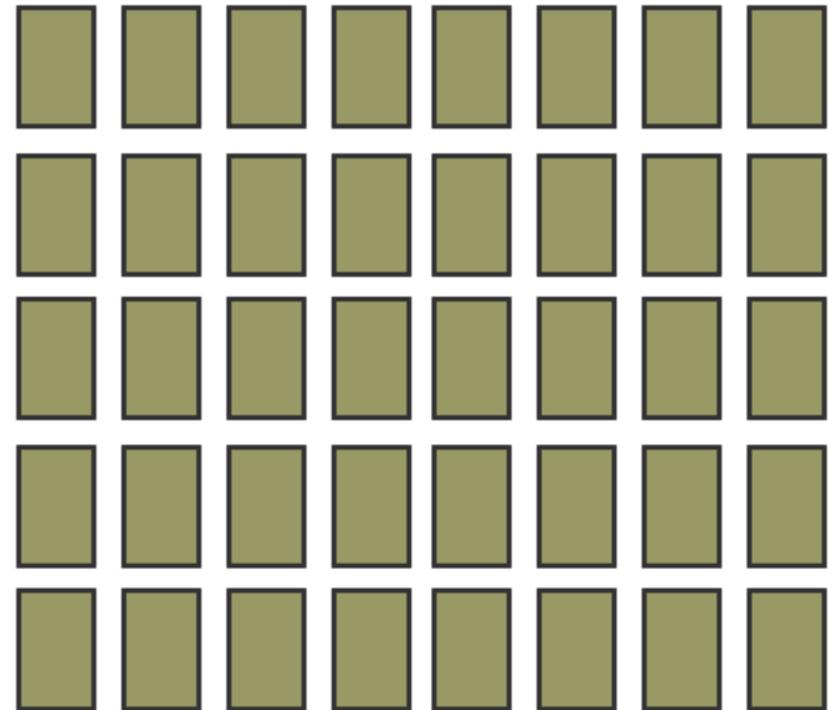
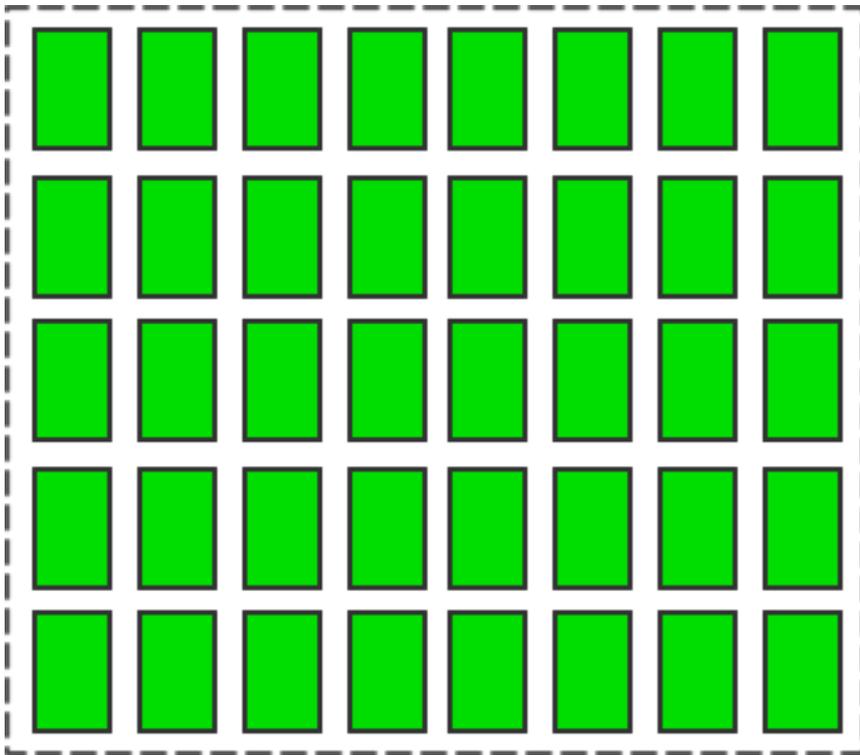
Rolling



Parallel



Parallel



Not Rollouts

- **Piloting**
- **Feature Toggle**

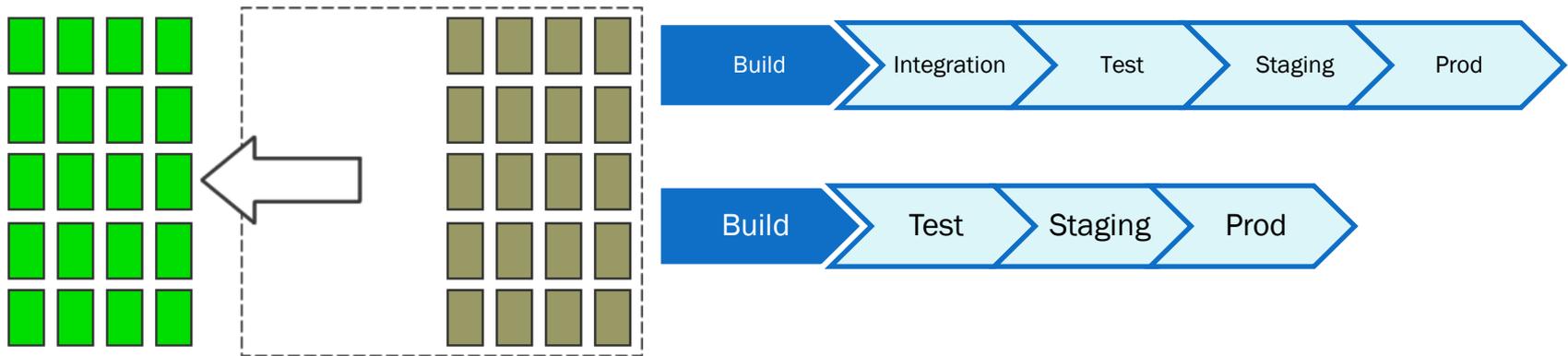
Cloud Delivery

- **Not Much, Really**
- **Simplifies Environments**
- **Simplifies Mistakes**

Build Your Own Plan

- **Application Segregation**
- **Environments**
- **Release Workflow**
- **Delivery**
 - **Components**
 - **Push vs Pull**
 - **Rollouts**
- **Cloud Application**

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Deployment Matters

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