

# Testing with Feature Toggles

Emily Bache

@emilybache

<http://coding-is-like-cooking.info>

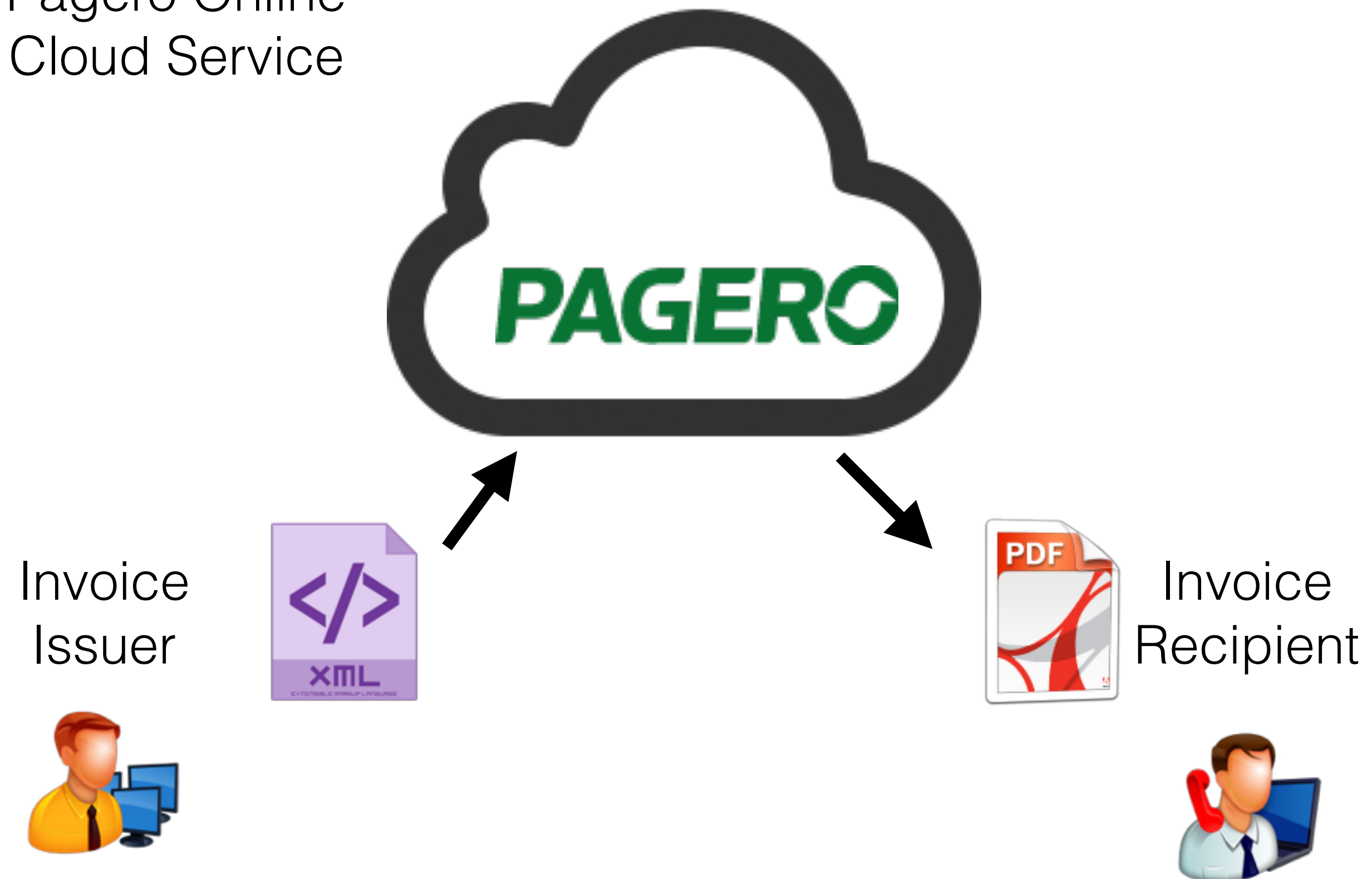
DevTribe, November 2016

**PAGERO**



# Pagero: a success story

Pagero Online  
Cloud Service



# Multi-team development



Feature B



Feature A



Feature C

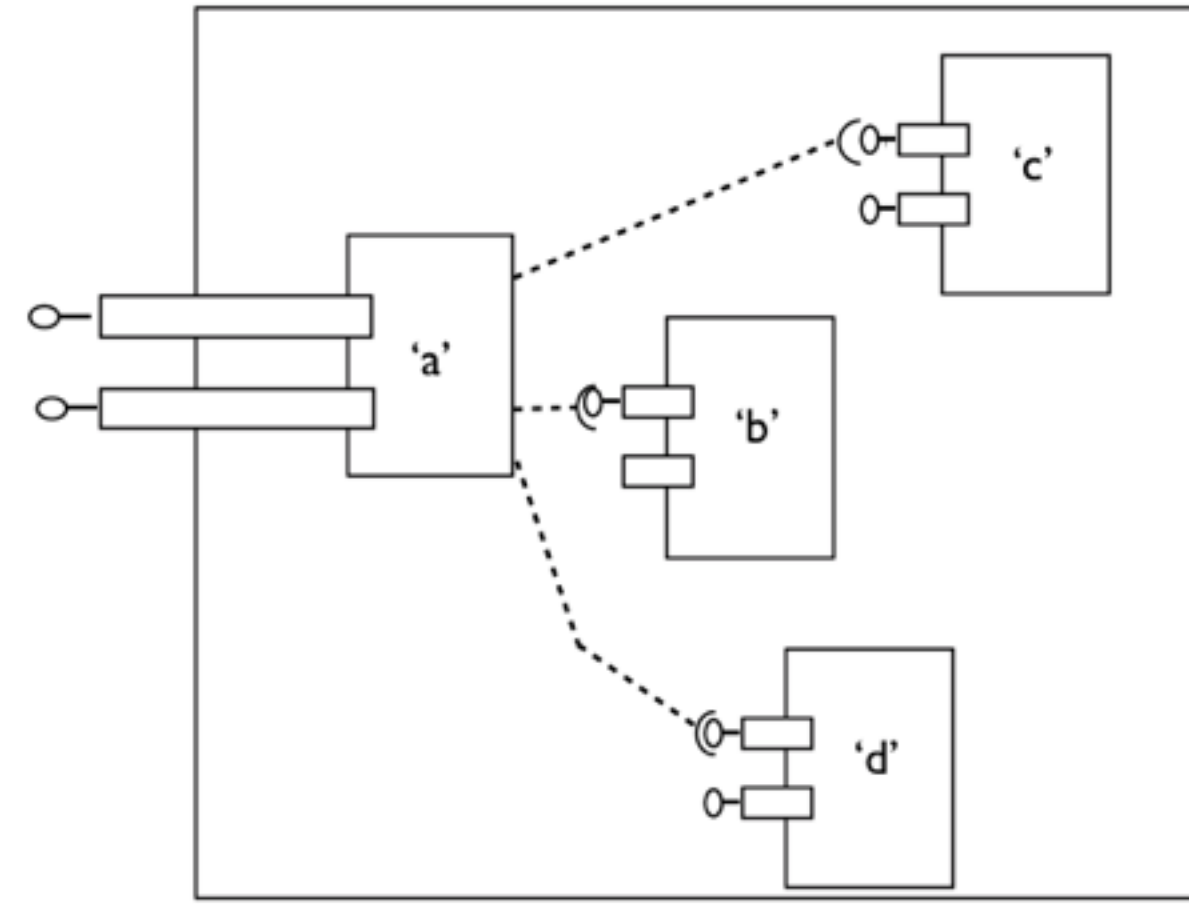


Feature D

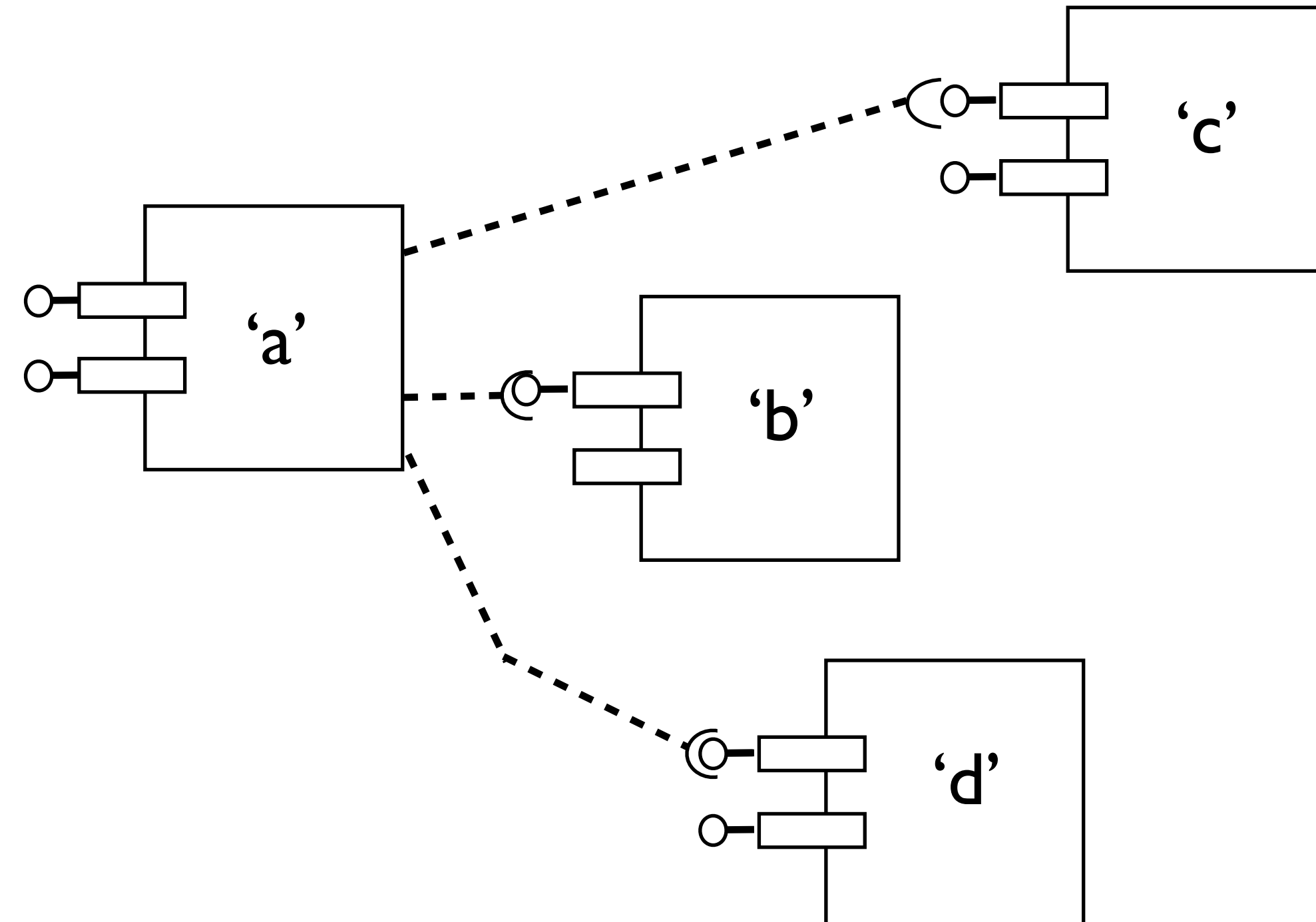
Feature E



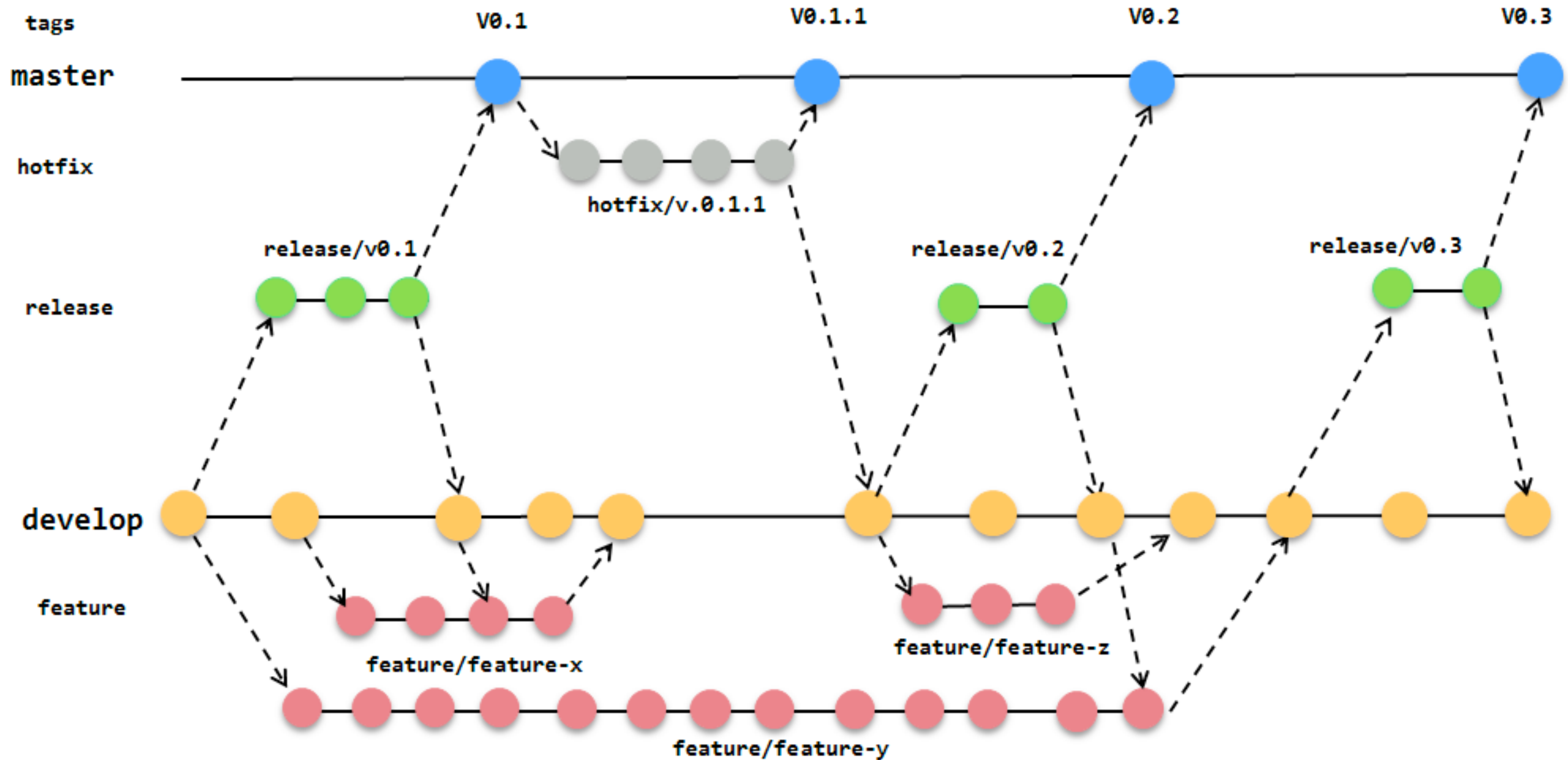
Before:



After:



# Git Flow

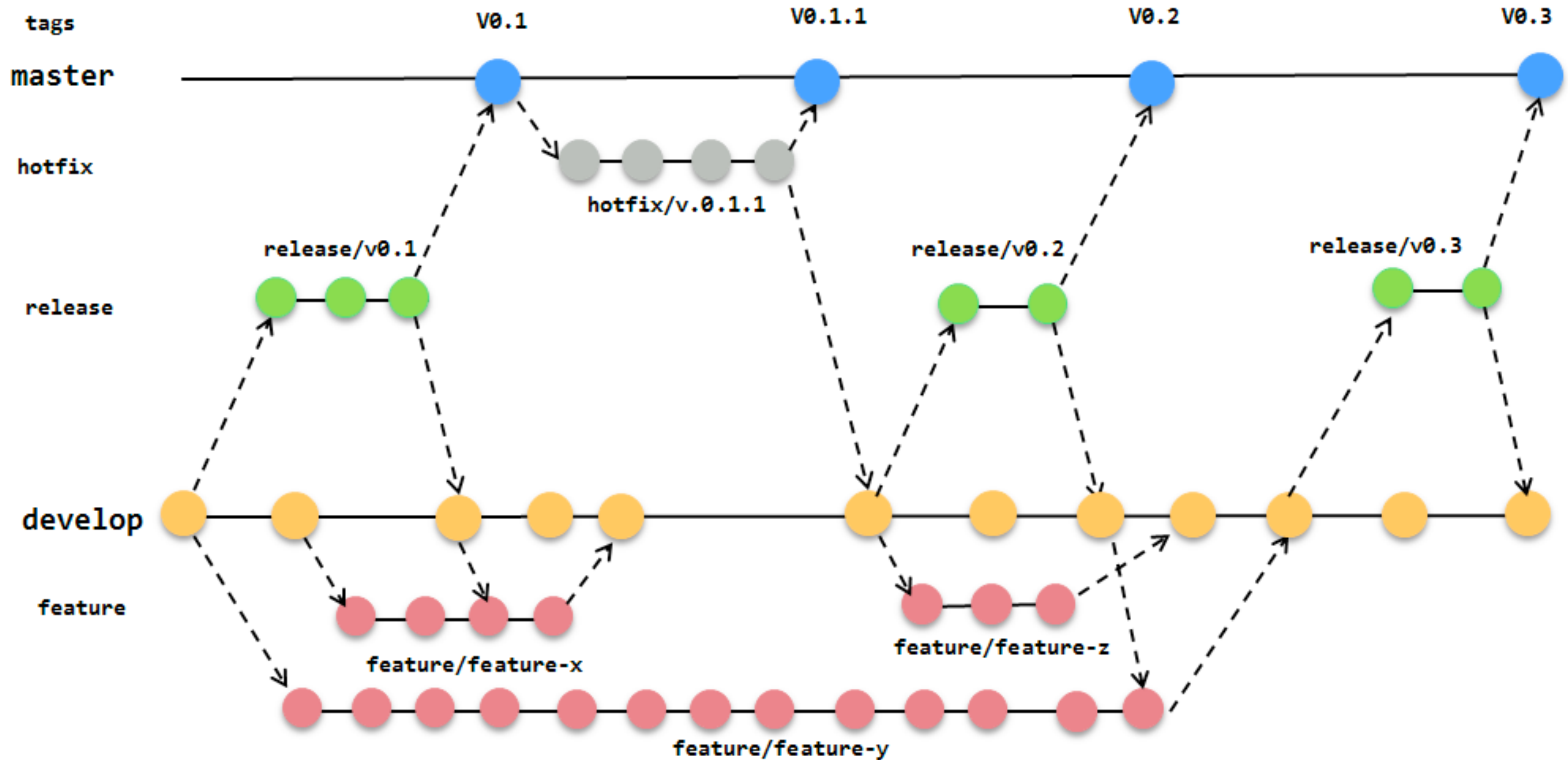


# 'goto fail' bug

```
if ((err = ReadyHash(&SSLHashSHA1, &hashCtx)) != 0)
    goto fail;
if ((err = SSLHashSHA1.update(&hashCtx, &clientRandom)) != 0)
    goto fail;
if ((err = SSLHashSHA1.update(&hashCtx, &serverRandom)) != 0)
    goto fail;
if ((err = SSLHashSHA1.update(&hashCtx, &signedParams)) != 0)
    goto fail;
    goto fail;
if ((err = SSLHashSHA1.final(&hashCtx, &hashOut)) != 0)
    goto fail;
```

- This is part of a 80 line function in a 2000 line file
- Made Apple products vulnerable to 'man in the middle' attacks over ssh
- Probably introduced in a merge

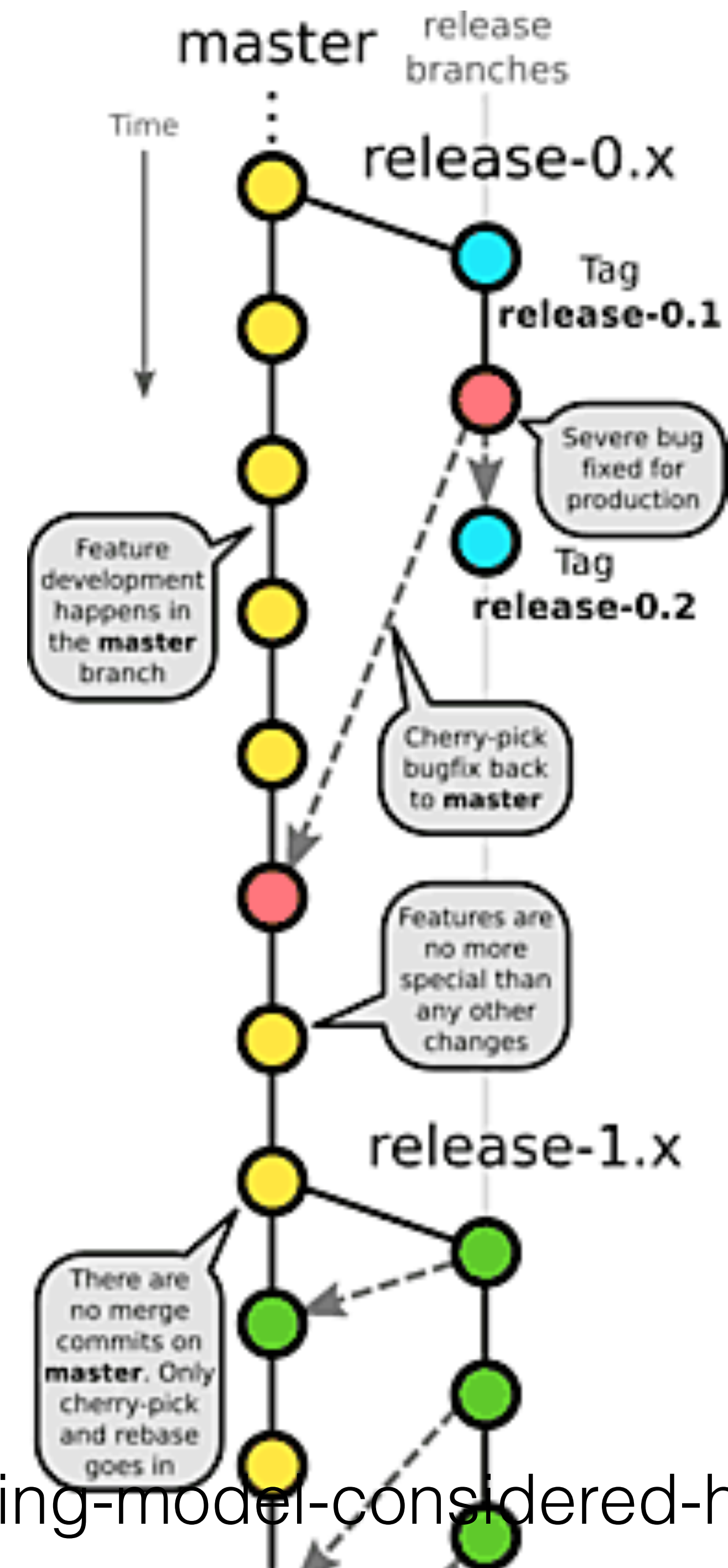
# Git Flow



# Cactus branching model

No merge commits:

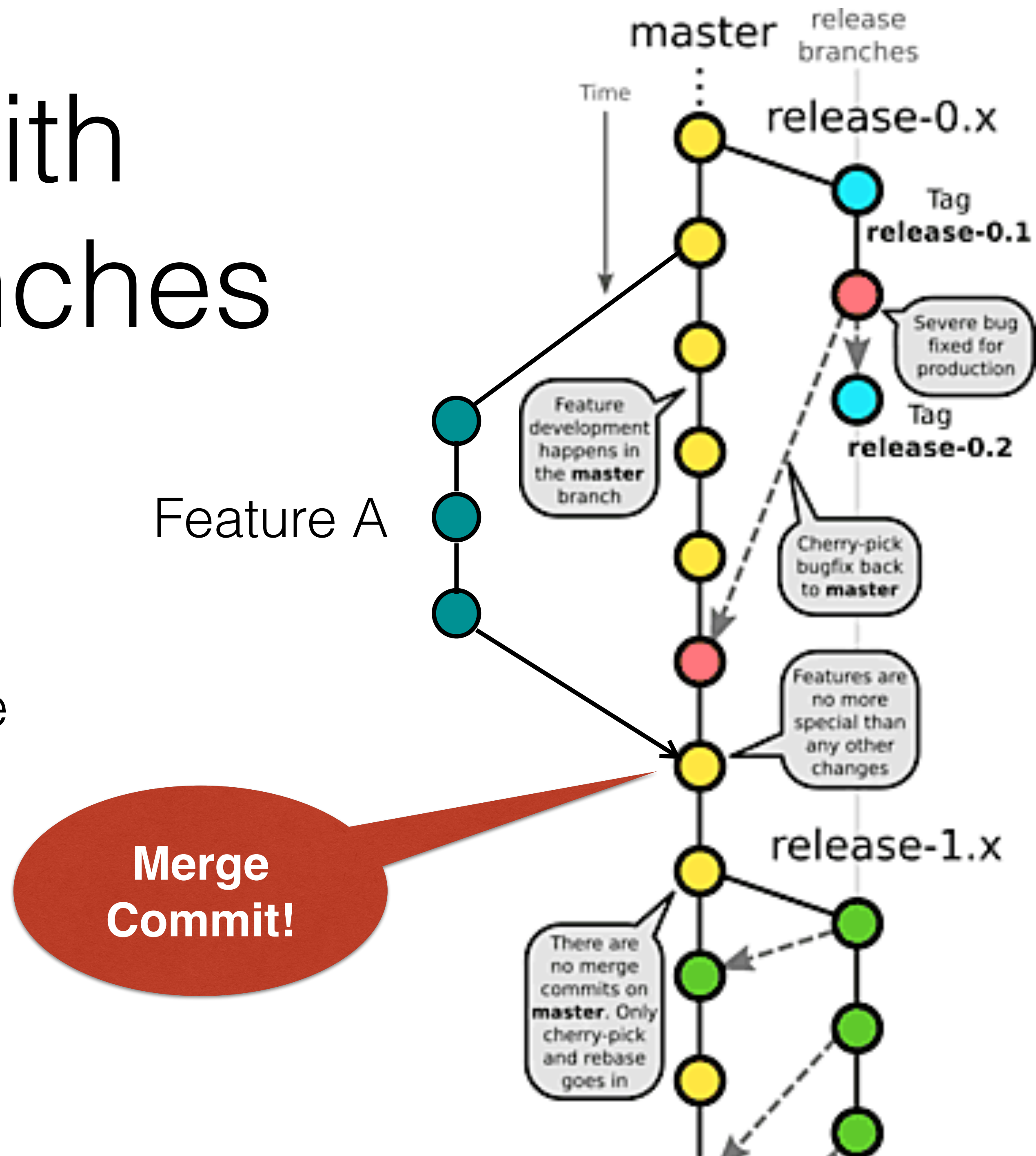
only cherry-pick and rebase



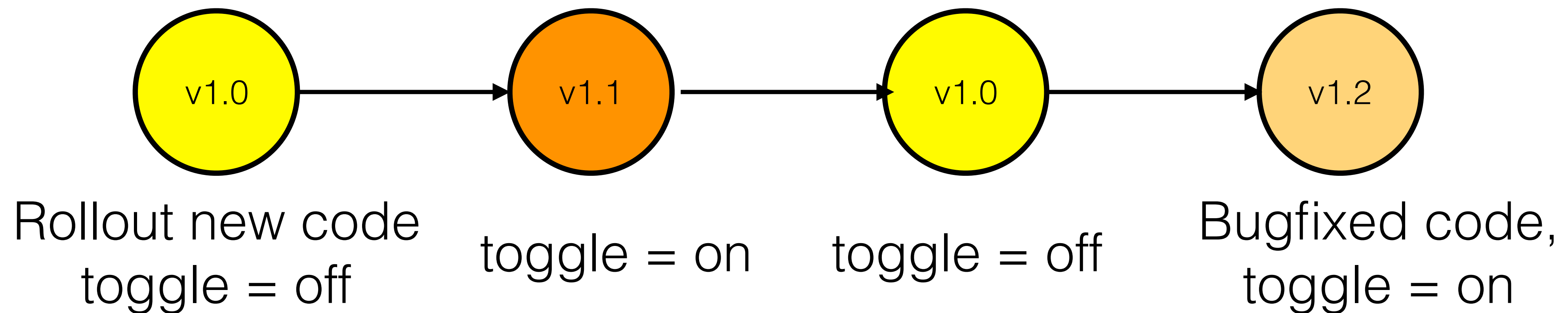


# Cactus with feature branches

Teams can still have feature branches

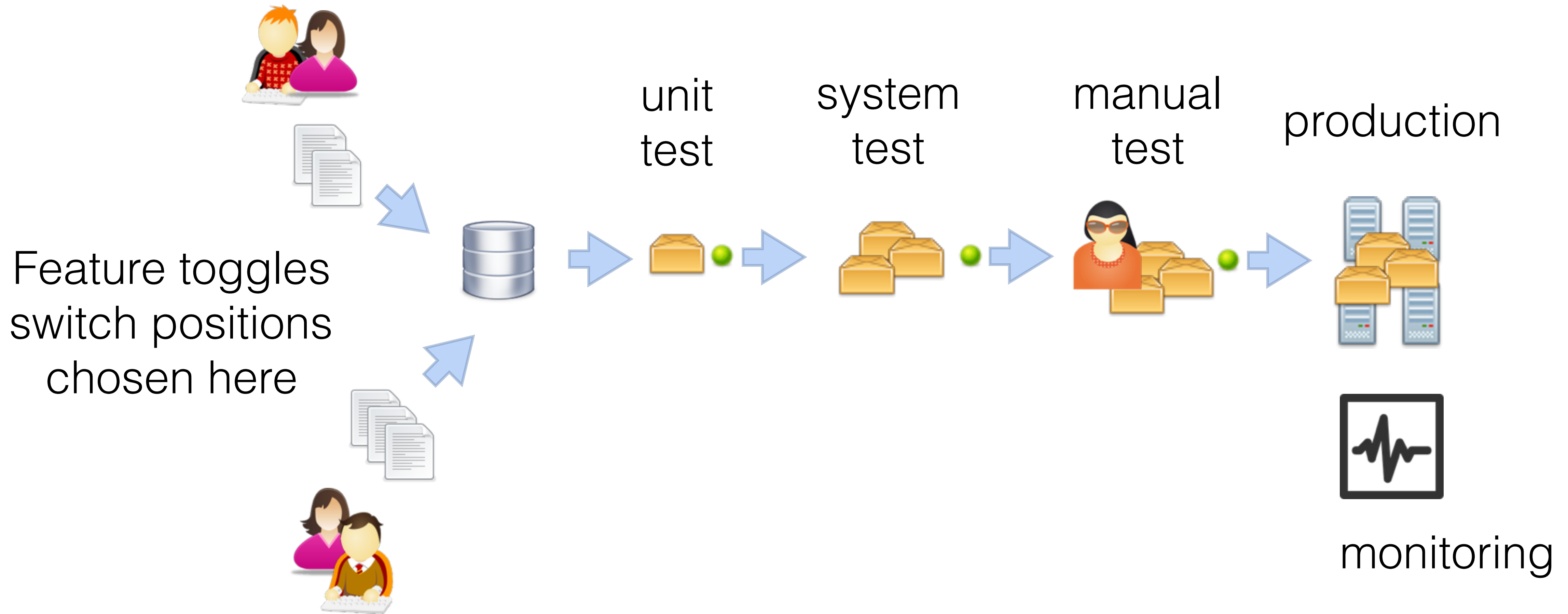


# Rapid Roll-back or Roll-forward

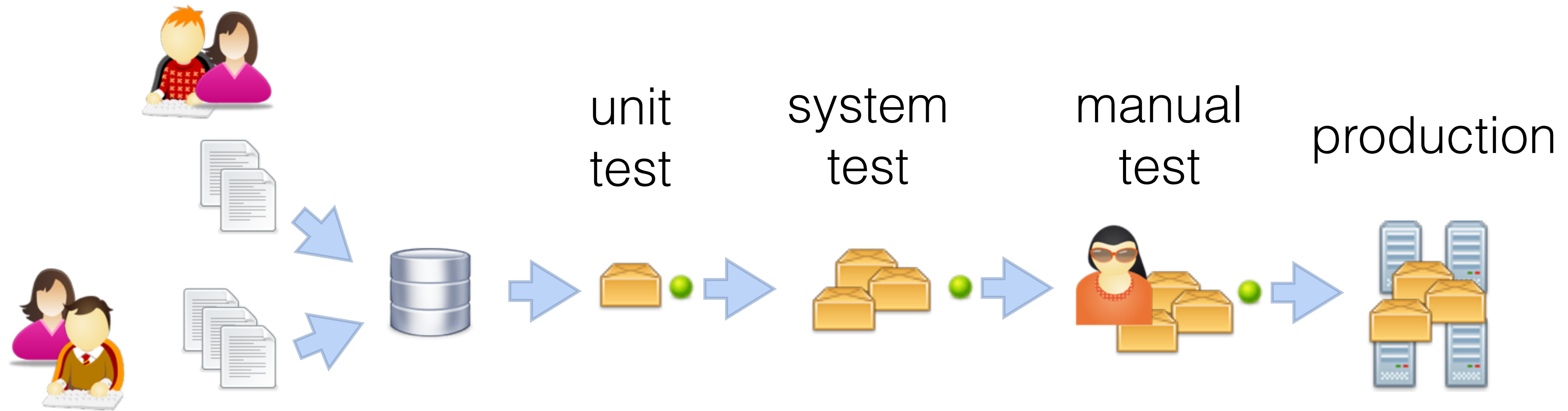


- When you've merged a feature branch into master, it's hard to remove again
- Feature toggles can be flipped back again very quickly

# Continuous Delivery



# Single Piece flow?



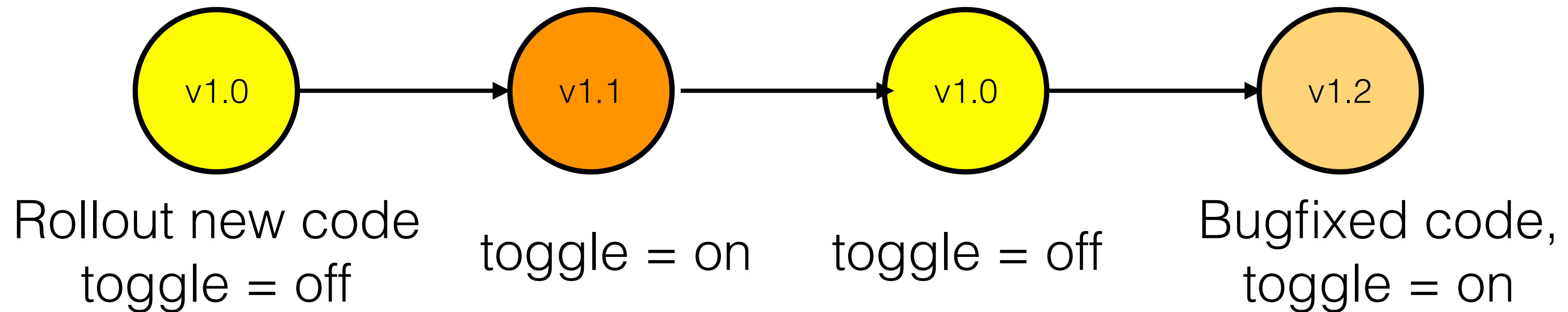
- CD is about reducing cycle time, reducing work in progress

- Feature toggles allow work in progress to build up, hidden and untested



monitoring

# Advantages

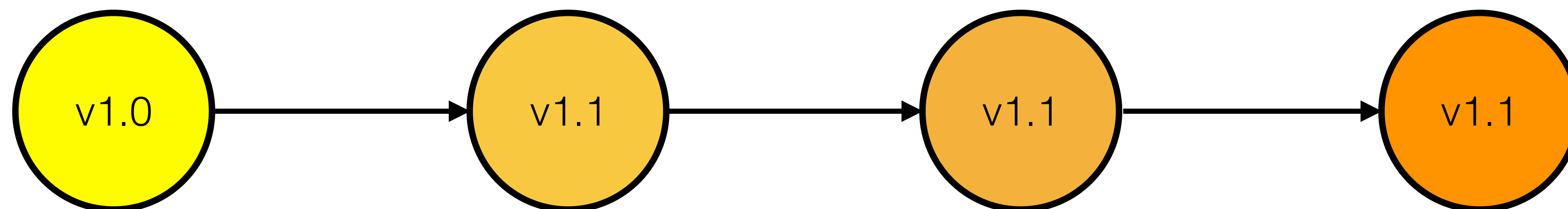


- Avoid merges
- Decouple development cycle from deployment cycle
- zero down time releases

# Disadvantages

- Extra code to read and understand
- May build up 'legacy toggles' if you forget to remove those that never flip
- Flipping a toggle breaks someone else's feature unexpectedly
- Lots of combinations to test

# Next steps



Rollout new code  
toggle = off

toggle = on  
for 1%

toggle = on  
for 10%

toggle = on  
for 100%



monitoring

- Incremental rollout - flipping a toggle just for a few customers or users

# Summary

- Feature toggles to support multi-team development, instead of feature branches



Feature B



Feature D



Feature A

