Immutable Server Generation

The New App Deployment

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boxfuse

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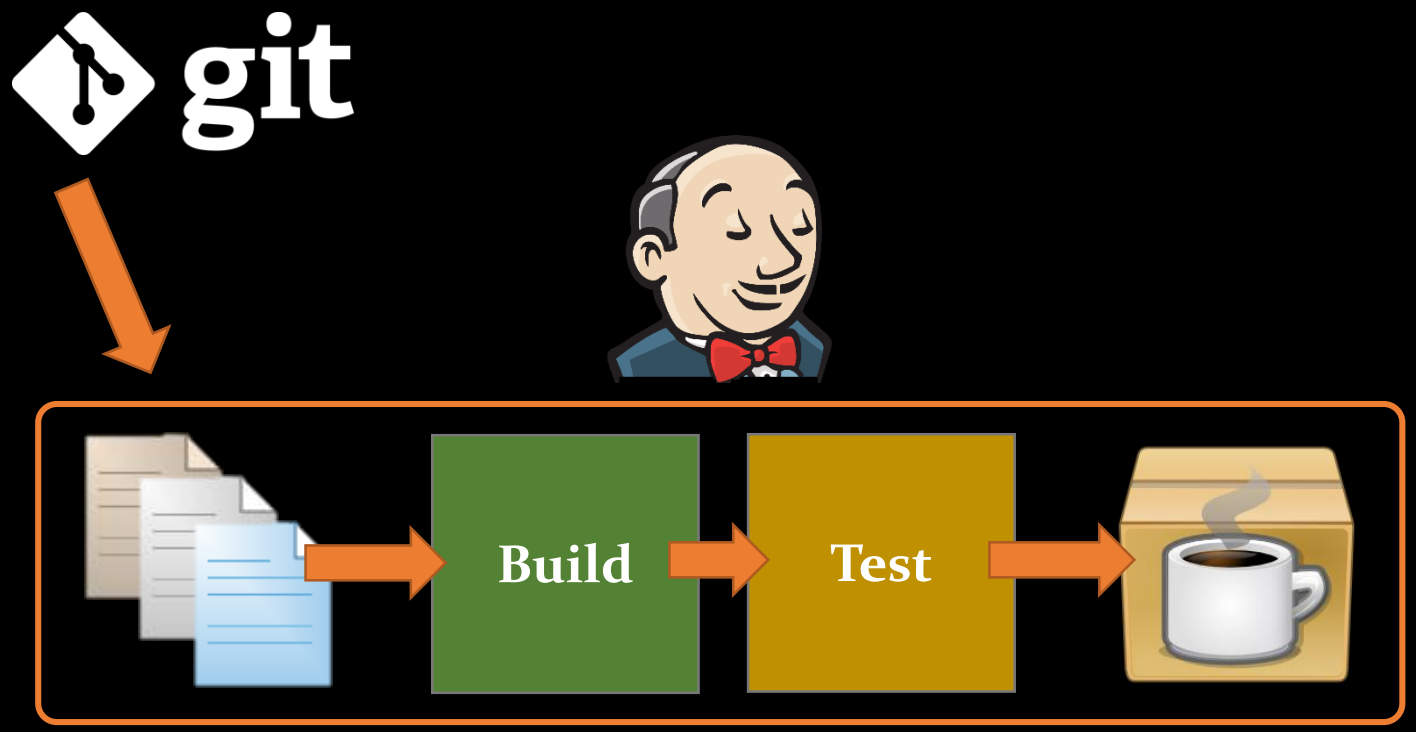
about

questions

POLL:
which level of automation are you at?

- Build
- Unit Tests
- Continuous Integration
- Acceptance Tests
- Continuous Deployment (Code)
- Continuous Deployment (Code + DB + Configuration)
- Infrastructure



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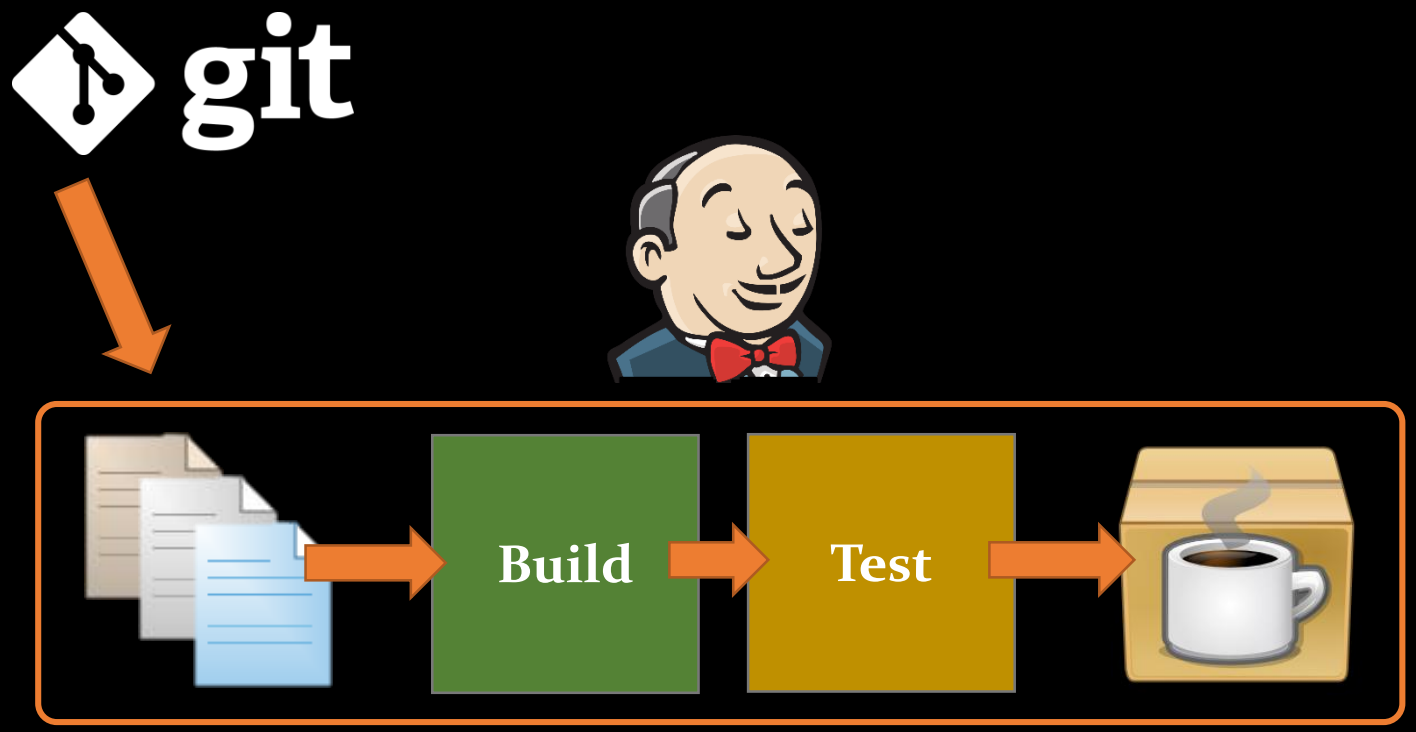

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- One immutable unit
- Regenerated after every change
- Promoted from Environment to Environment

Classic Mistake: Build per Environment

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why aren’t we doing the same
for the server this is running on ???

what could possibly go wrong
in the other layers ???

missing software

wrong name

bad version

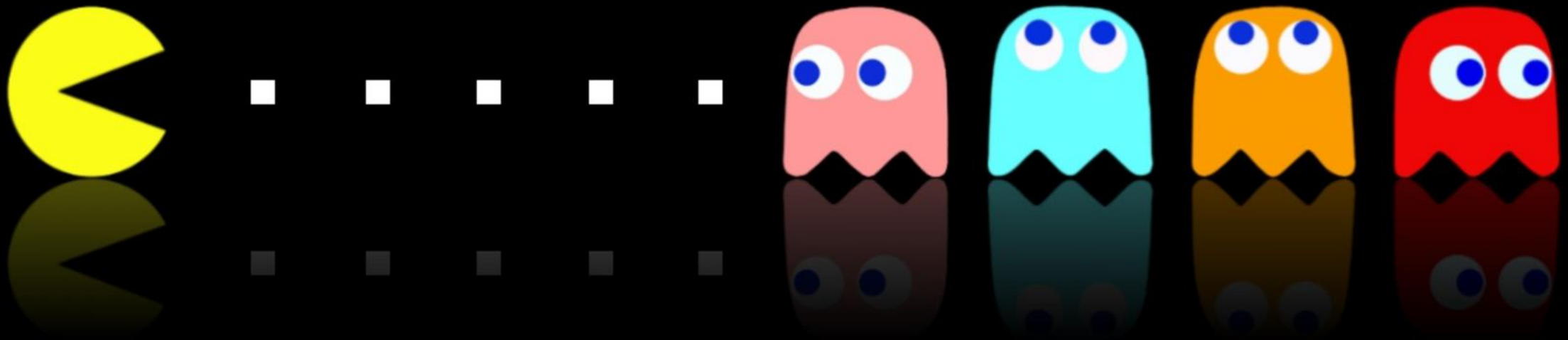
incorrect permissions

critical resource in use

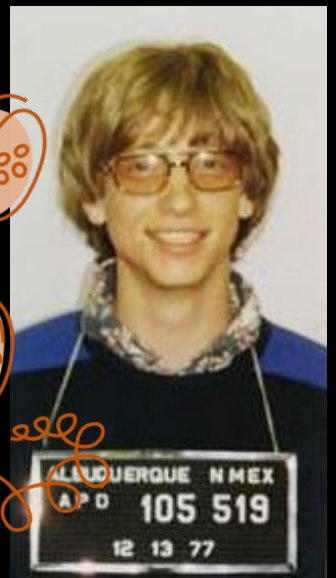
what aren’t we holding our servers to the same standards as our applications ???

how did we get into this mess ???

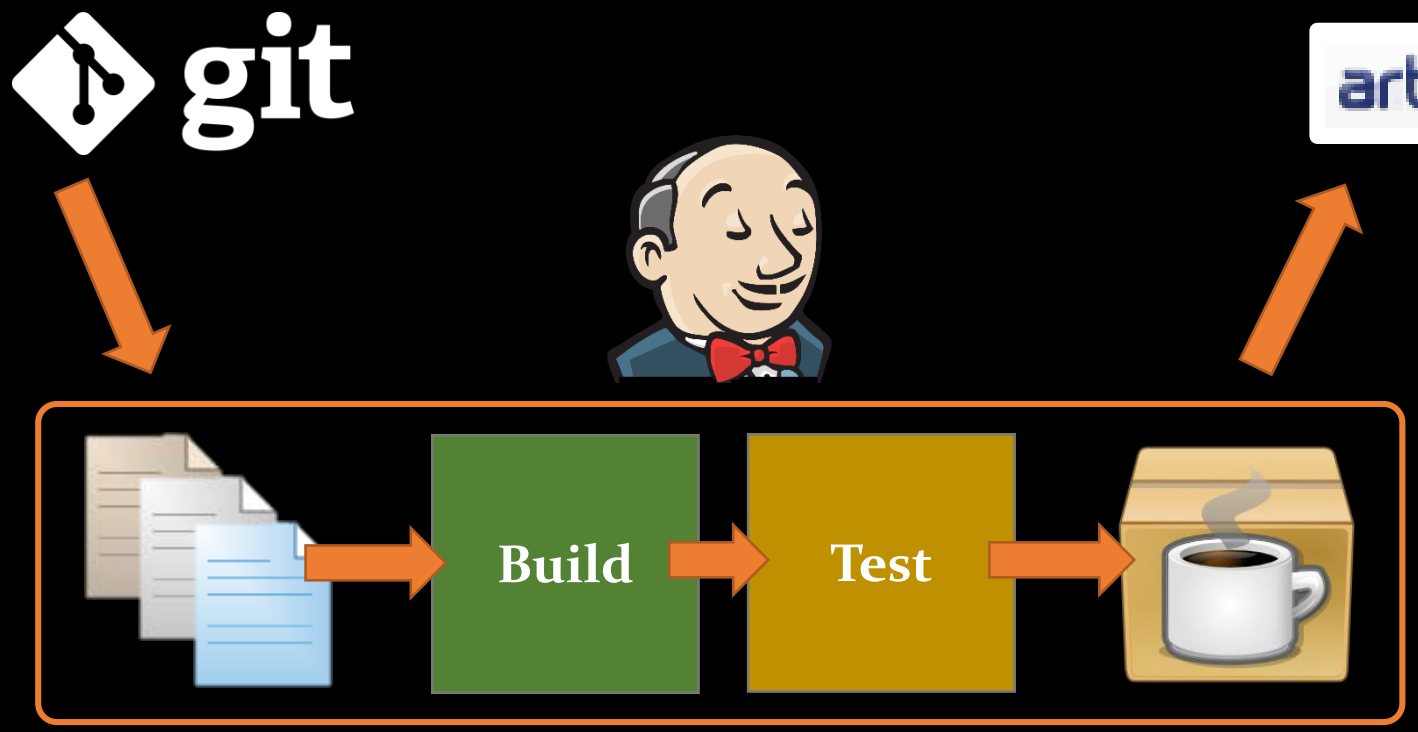
sometime in the 20th century …



http://en.wikipedia.org/wiki/File:Tdkc60cassette.jpg


ALBUQUERQUE N MEX
105 519
12 13 77

Microsoft
Microsoft
BackOffice
Microsoft
Windows NT
Server


git
artifactory
Build
Test

App
App Server
Language
Libraries
OS Kernel

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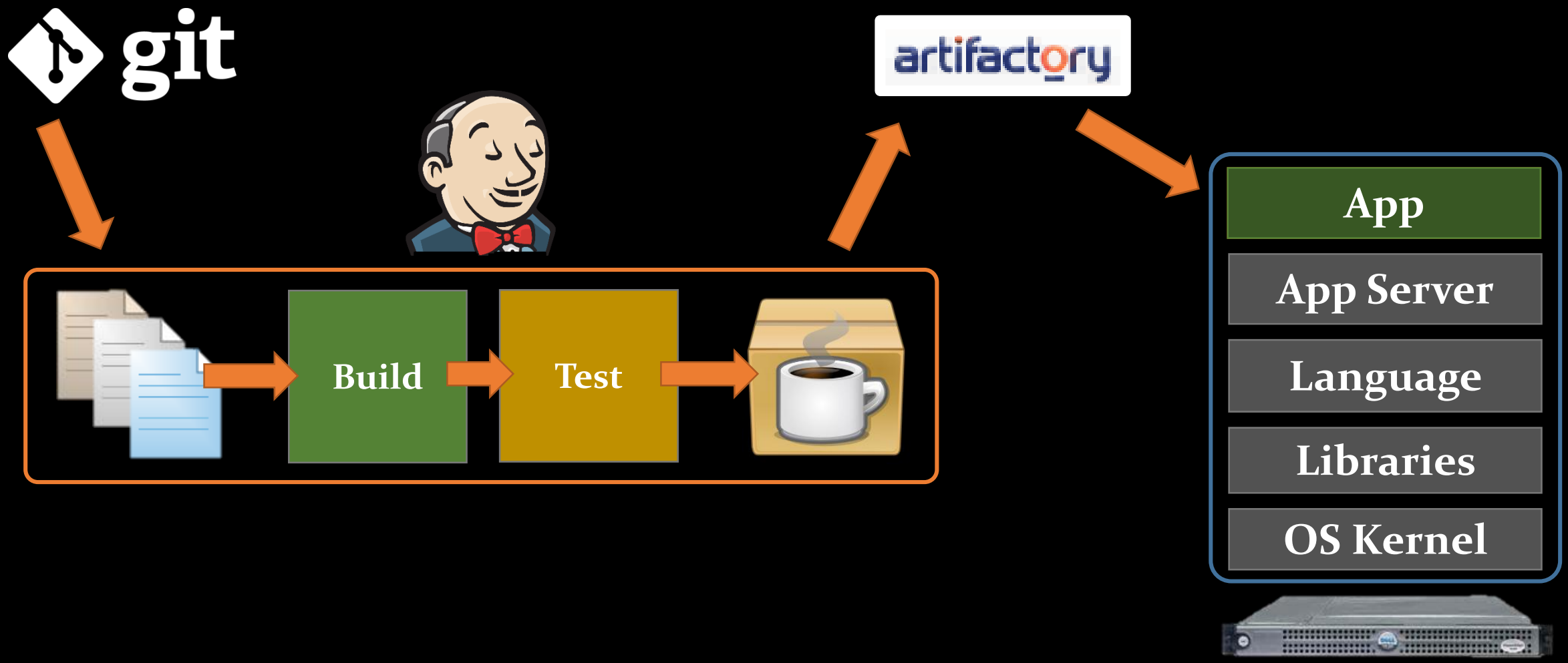
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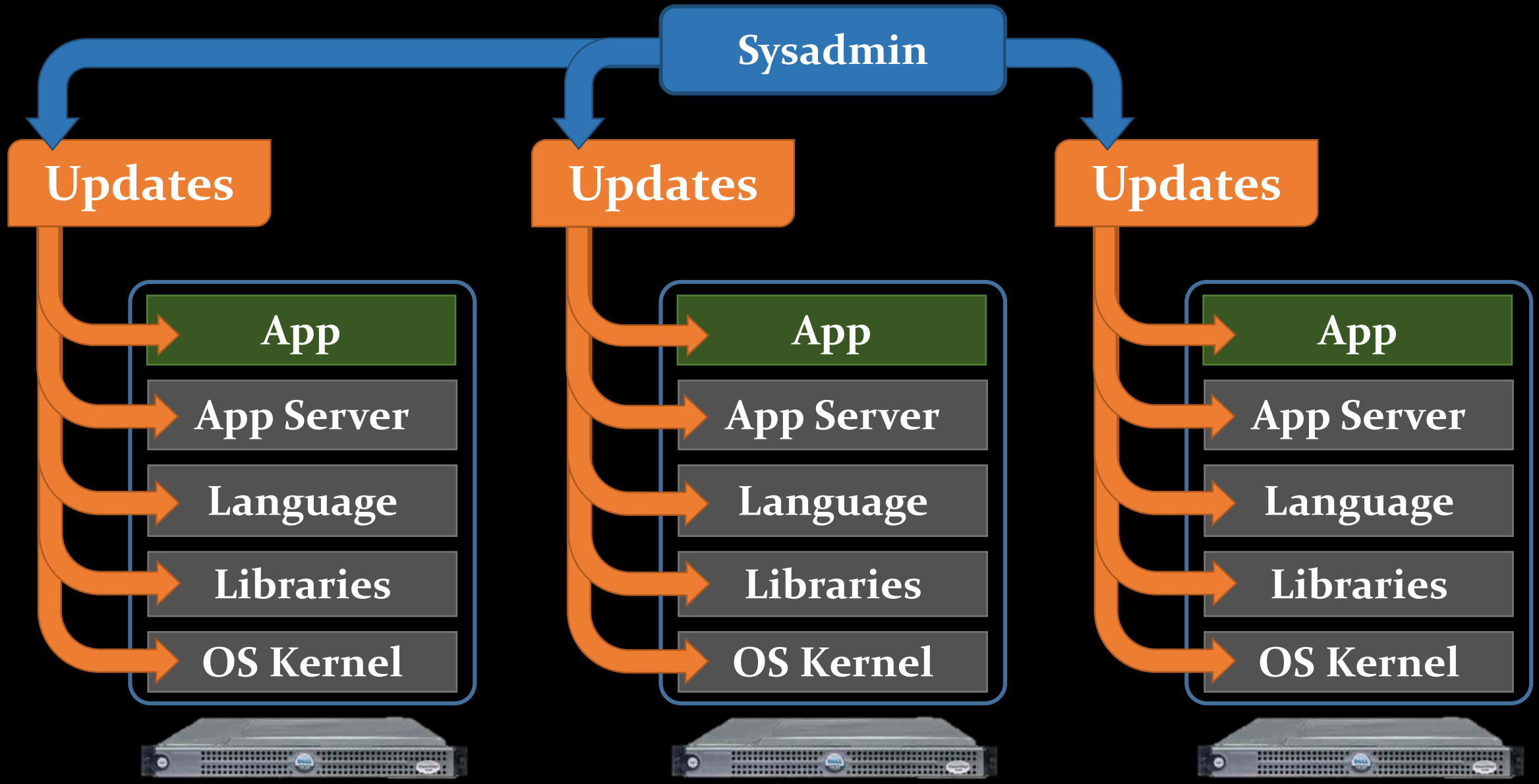
Sysadmin
Updates
Updates
Updates
App
App Server
Language
Libraries
OS Kernel
App
App Server
Language
Libraries
OS Kernel
App
App Server
Language
Libraries
OS Kernel

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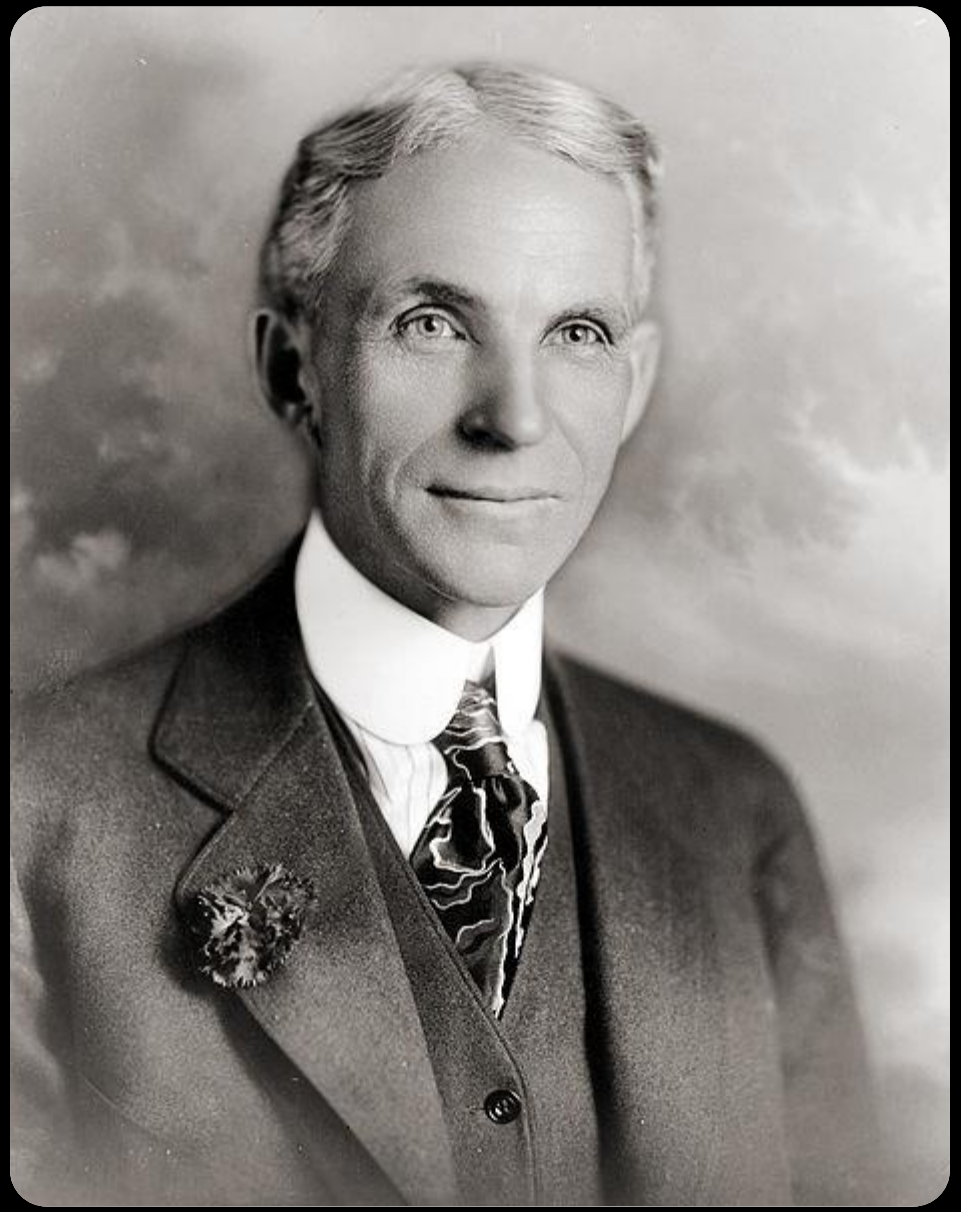

If I had asked my customers what they wanted they would have said a faster horse.

Henry Ford

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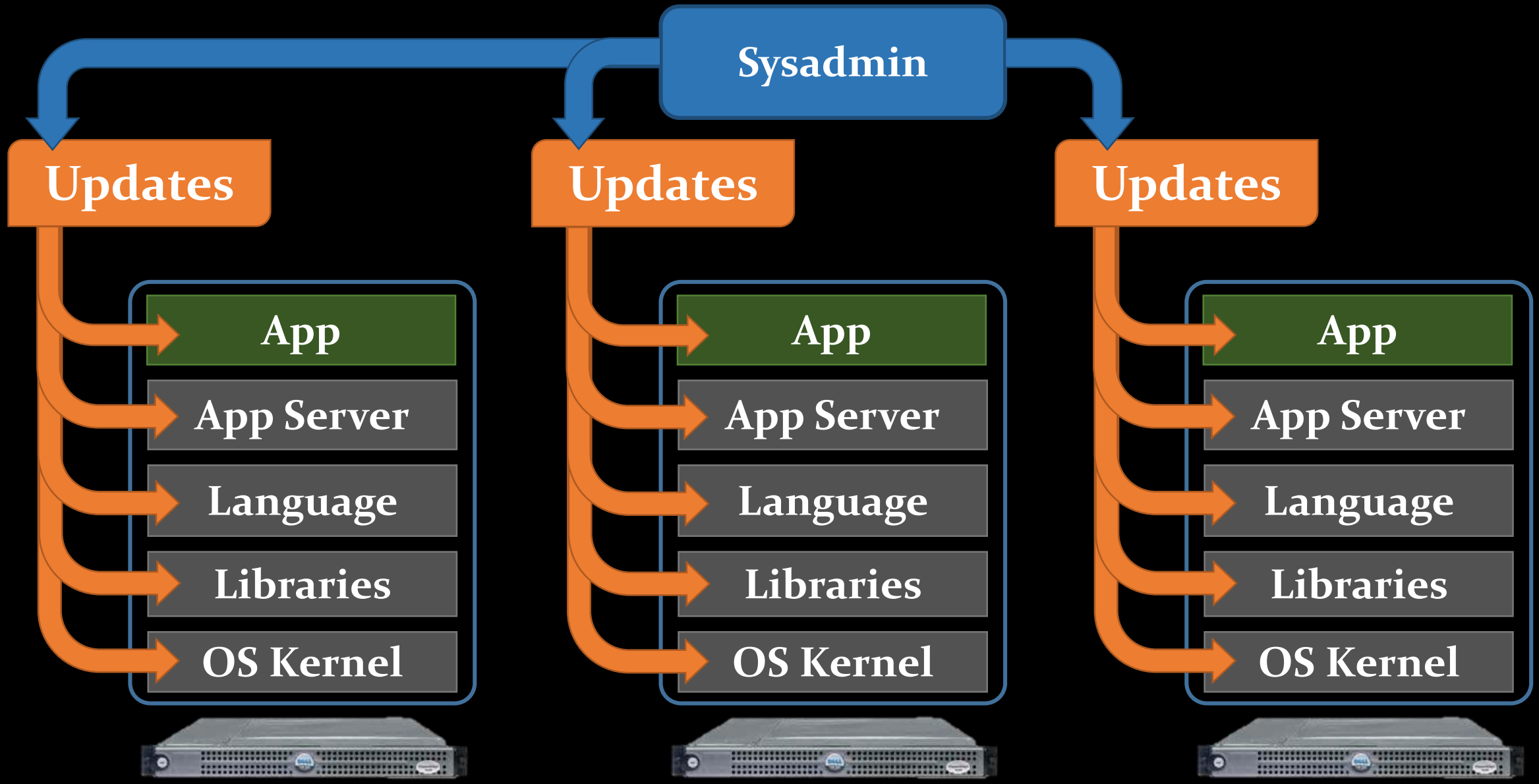
Sysadmin
Updates
Updates
Updates
App
App Server
Language
Libraries
OS Kernel
App
App Server
Language
Libraries
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App Server
Language
Libraries
OS Kernel

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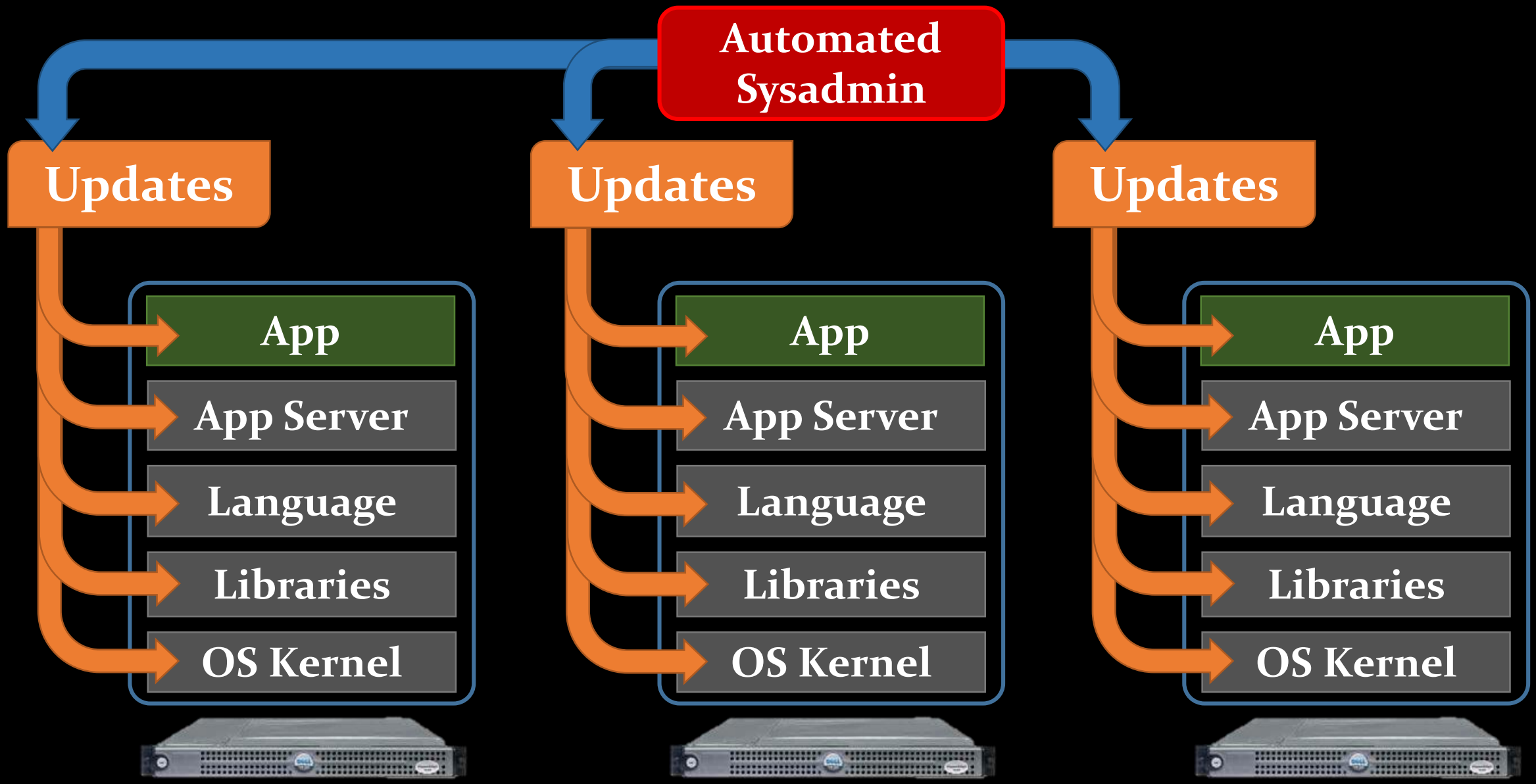
Automated Sysadmin
Updates
Updates
Updates
App
App Server
Language
Libraries
OS Kernel
App
App Server
Language
Libraries
OS Kernel
App
App Server
Language
Libraries
OS Kernel

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fast forward to 2015 …

Every day, AWS adds enough server capacity to power the whole $5B enterprise Amazon.com was in 2003.
Weekends included.

amazon web services

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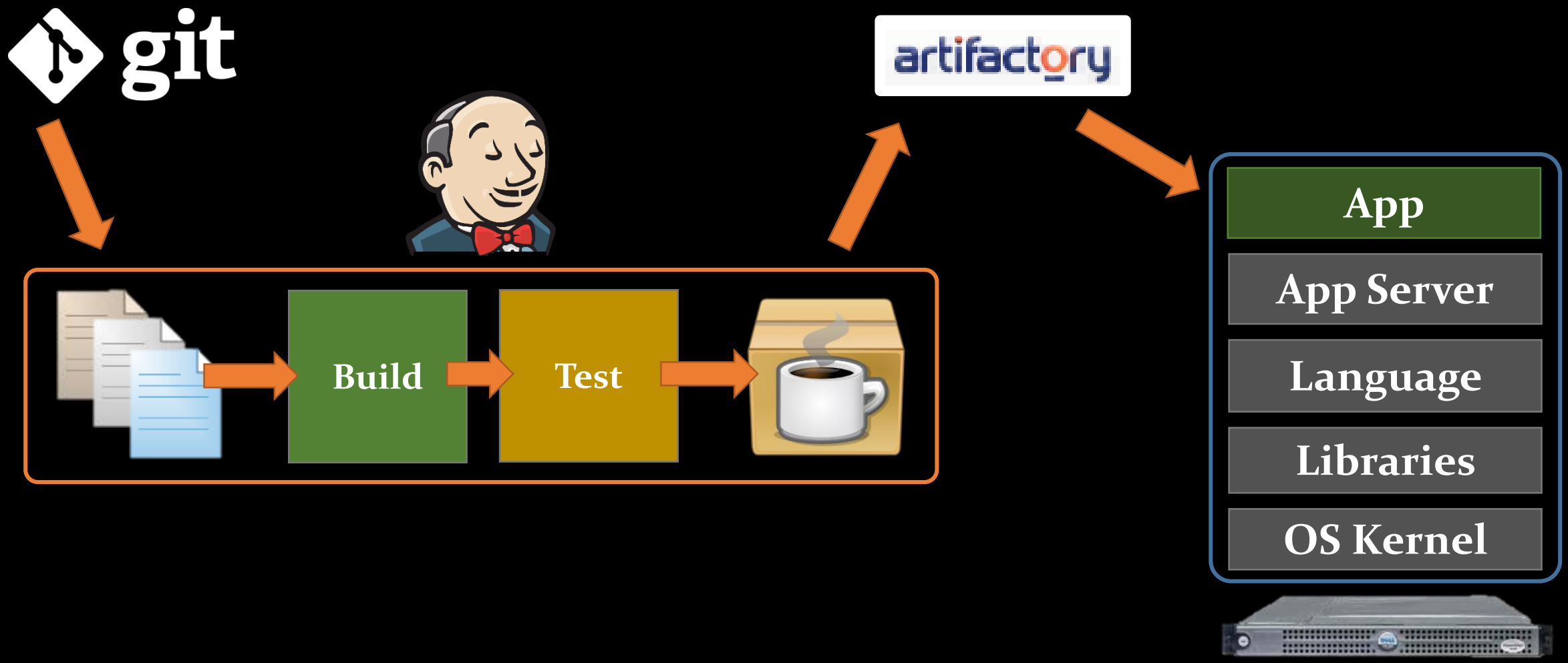
it is time to rethink the faster horse


git
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Build
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App Server
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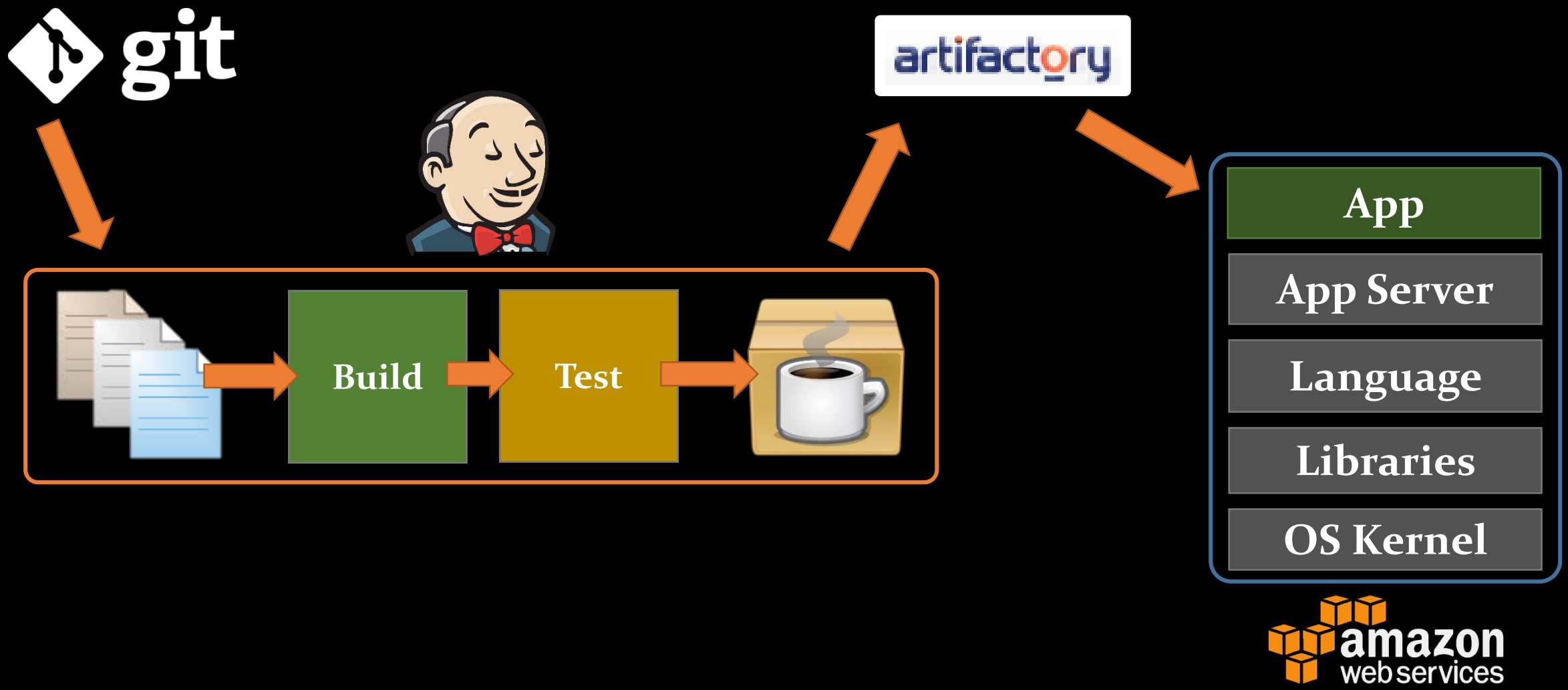
OS Kernel


git
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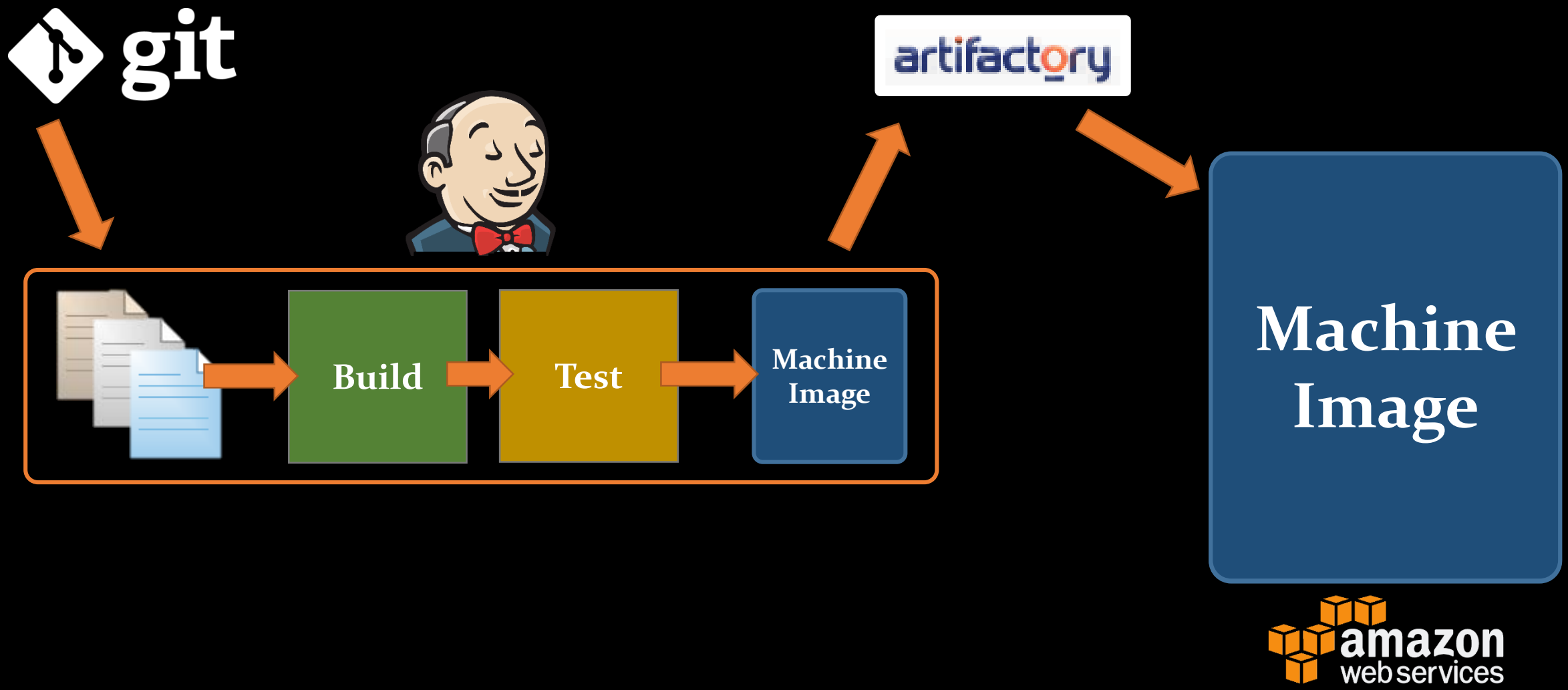
OS Kernel
amazon
web services
boxfuse


git
artifactory
Build
Test
Machine Image
Machine Image
amazon web services
boxfuse

Machine Image

Machine Image

Machine Image

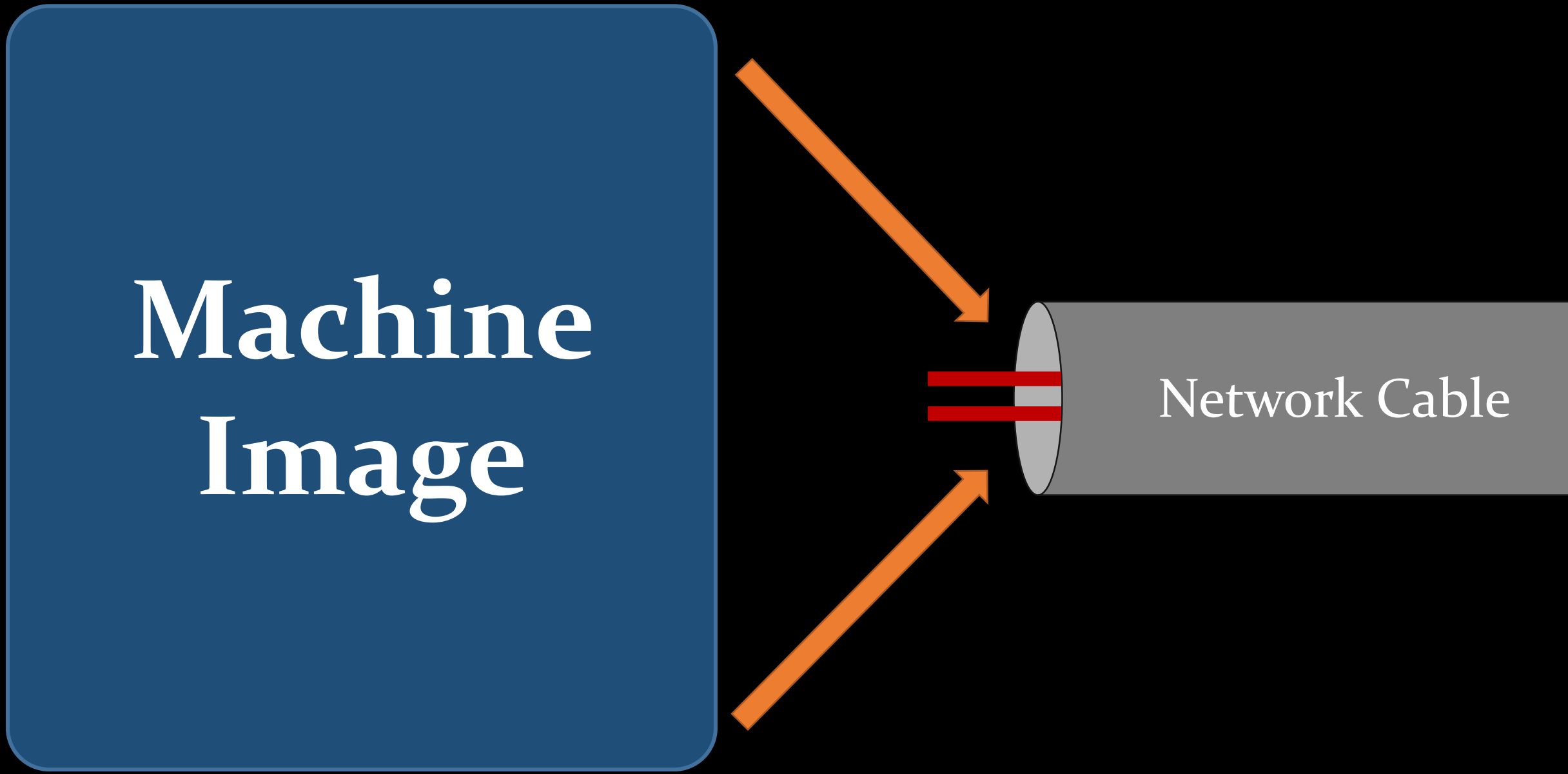
~~Updates~~

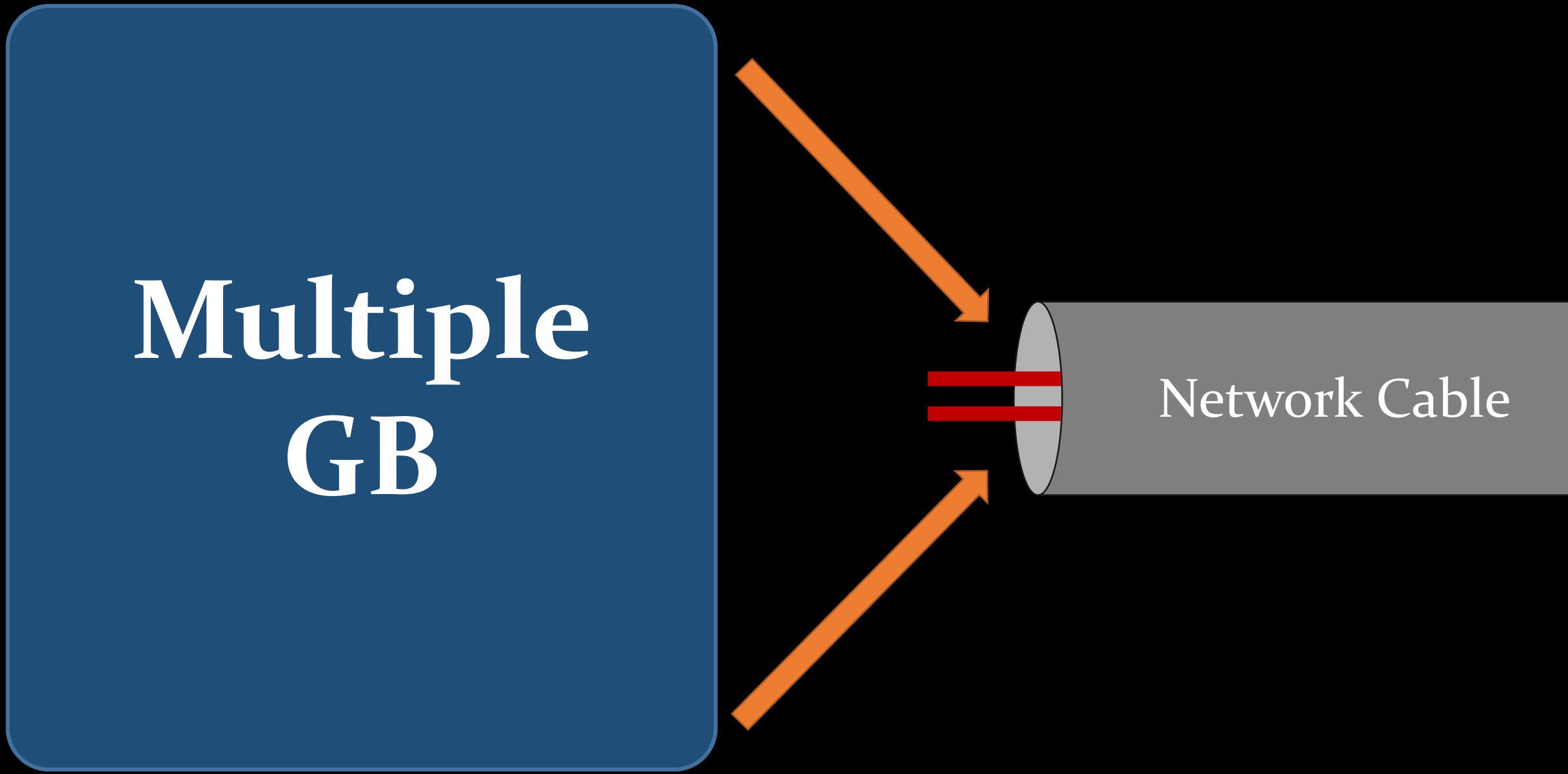
Machine Image

Machine Image

Machine Image

but there is one big problem left …


Machine Image
Network Cable



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Running servers in production should be like going backpacking. You take the bare minimum with you. Anything else is going to hurt.

A Wise Man

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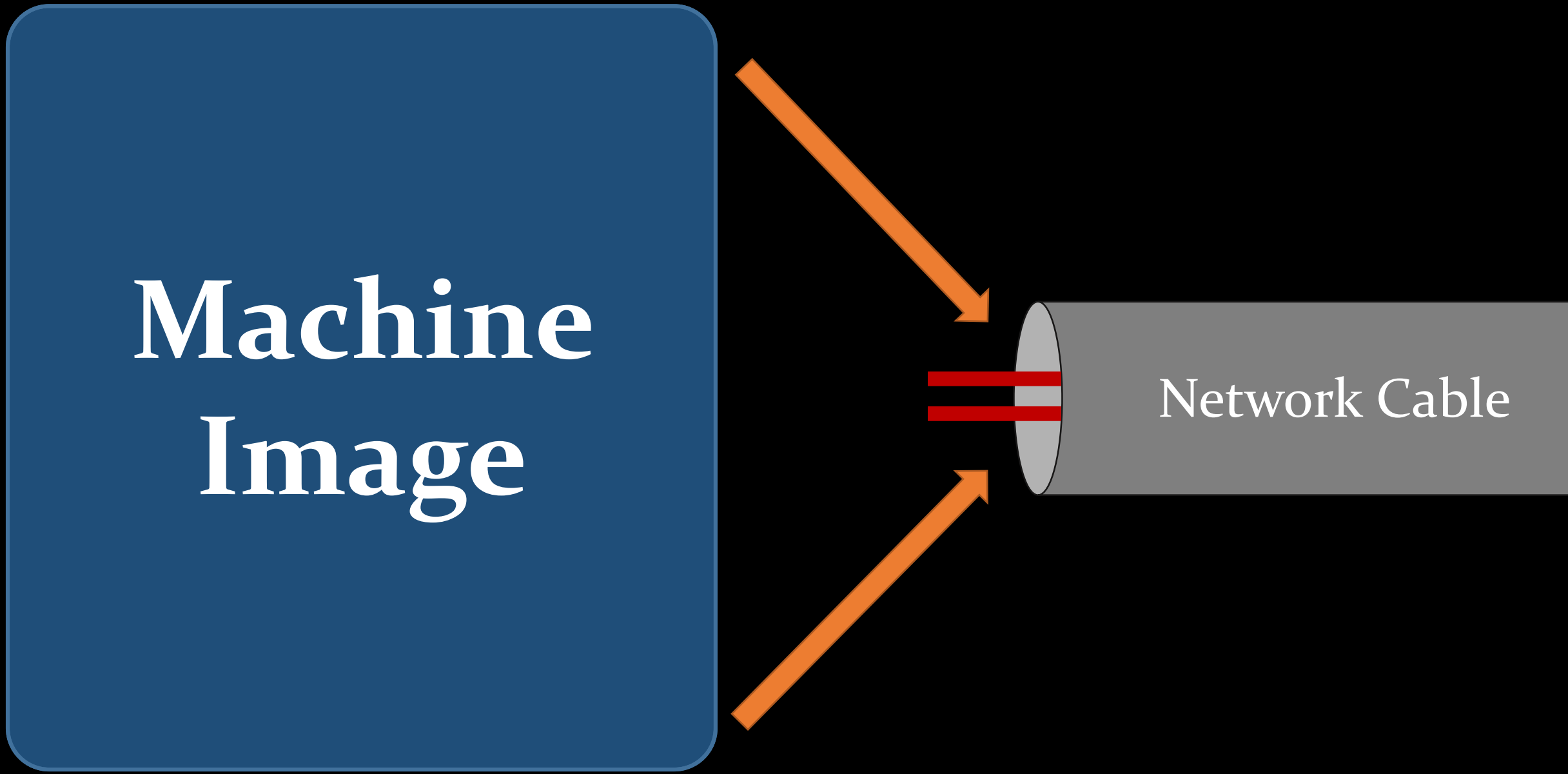
what is really adding business value ???



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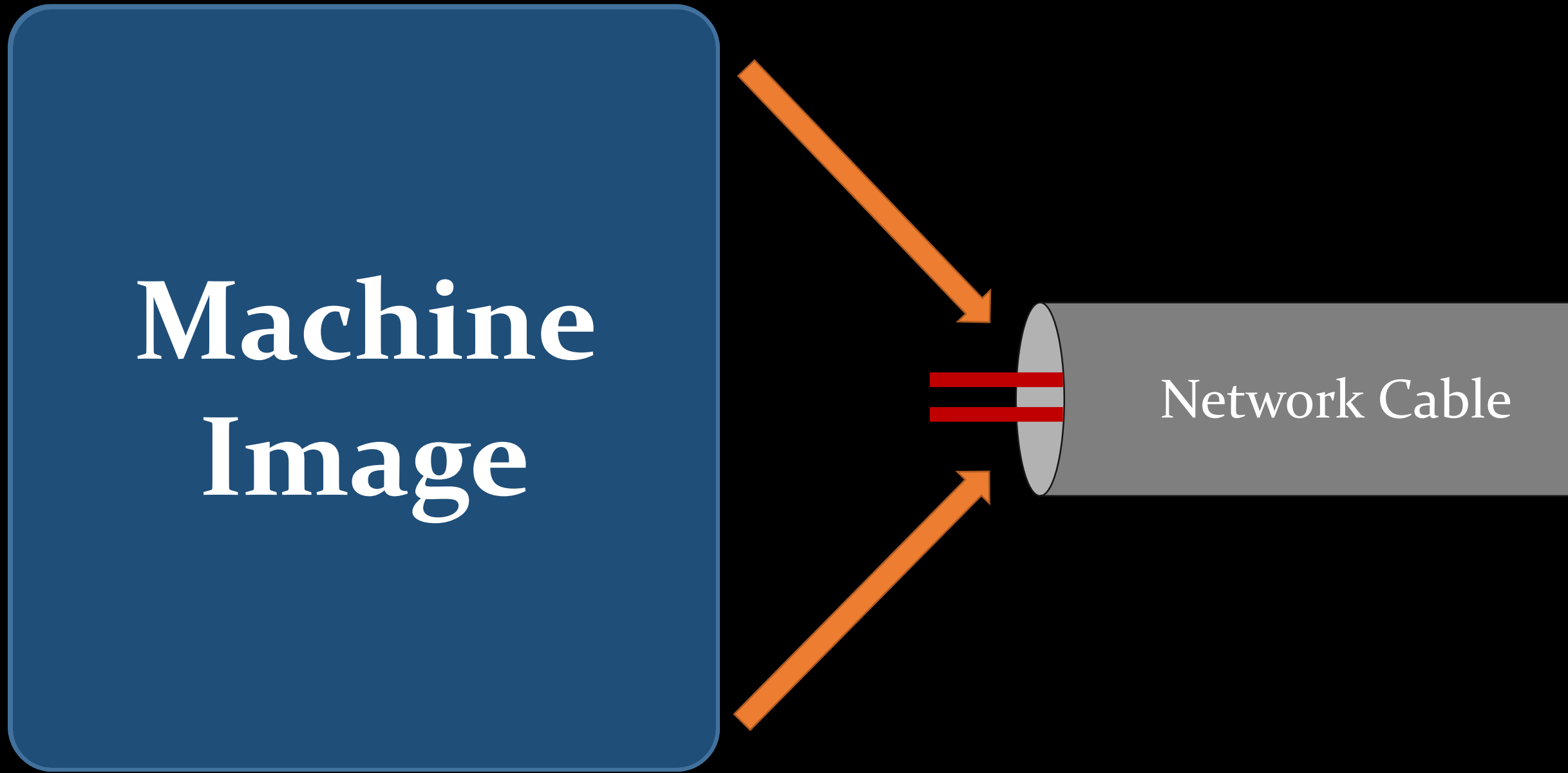

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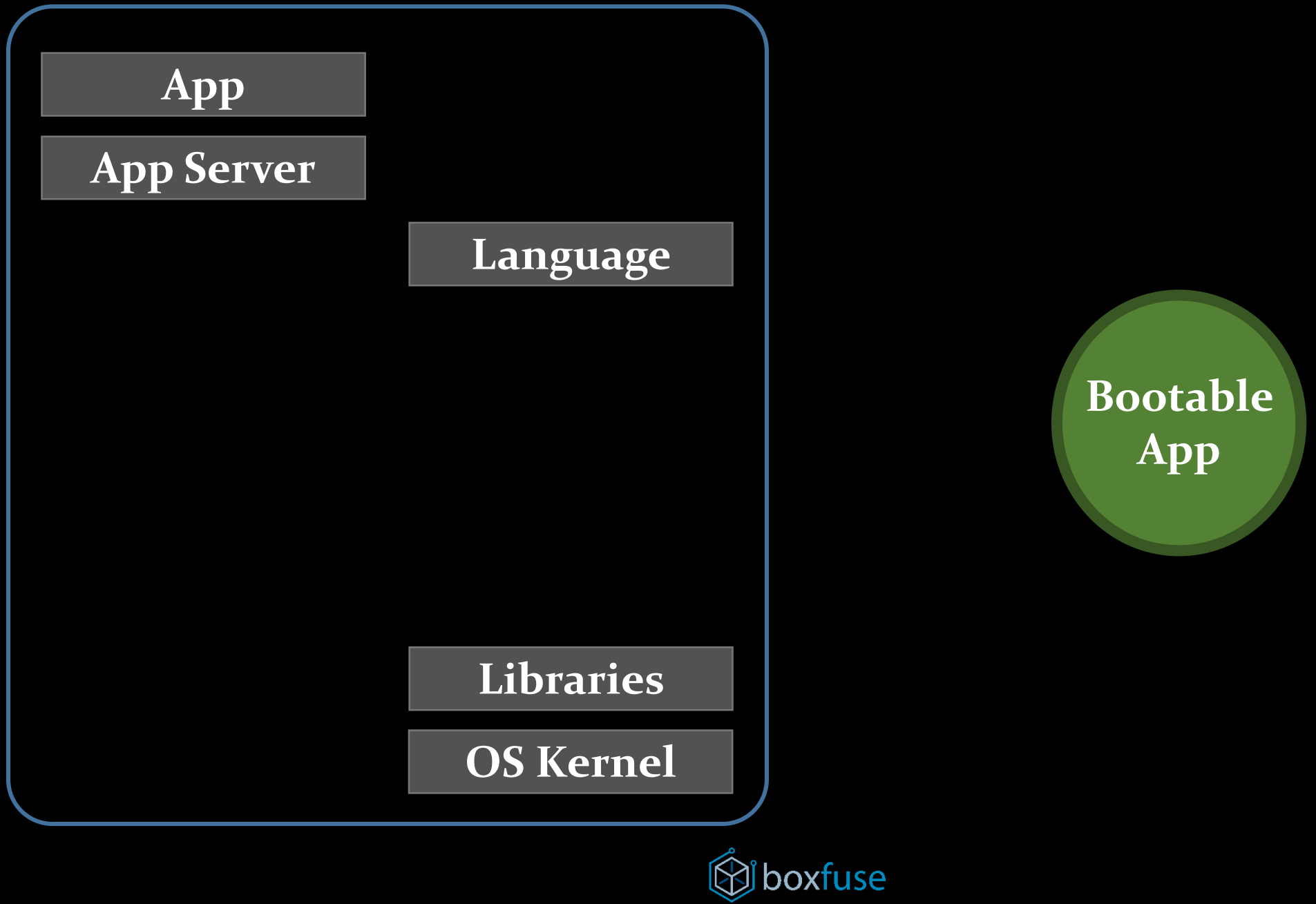
App
App Server
Language
Libraries
OS Kernel
Bootable App
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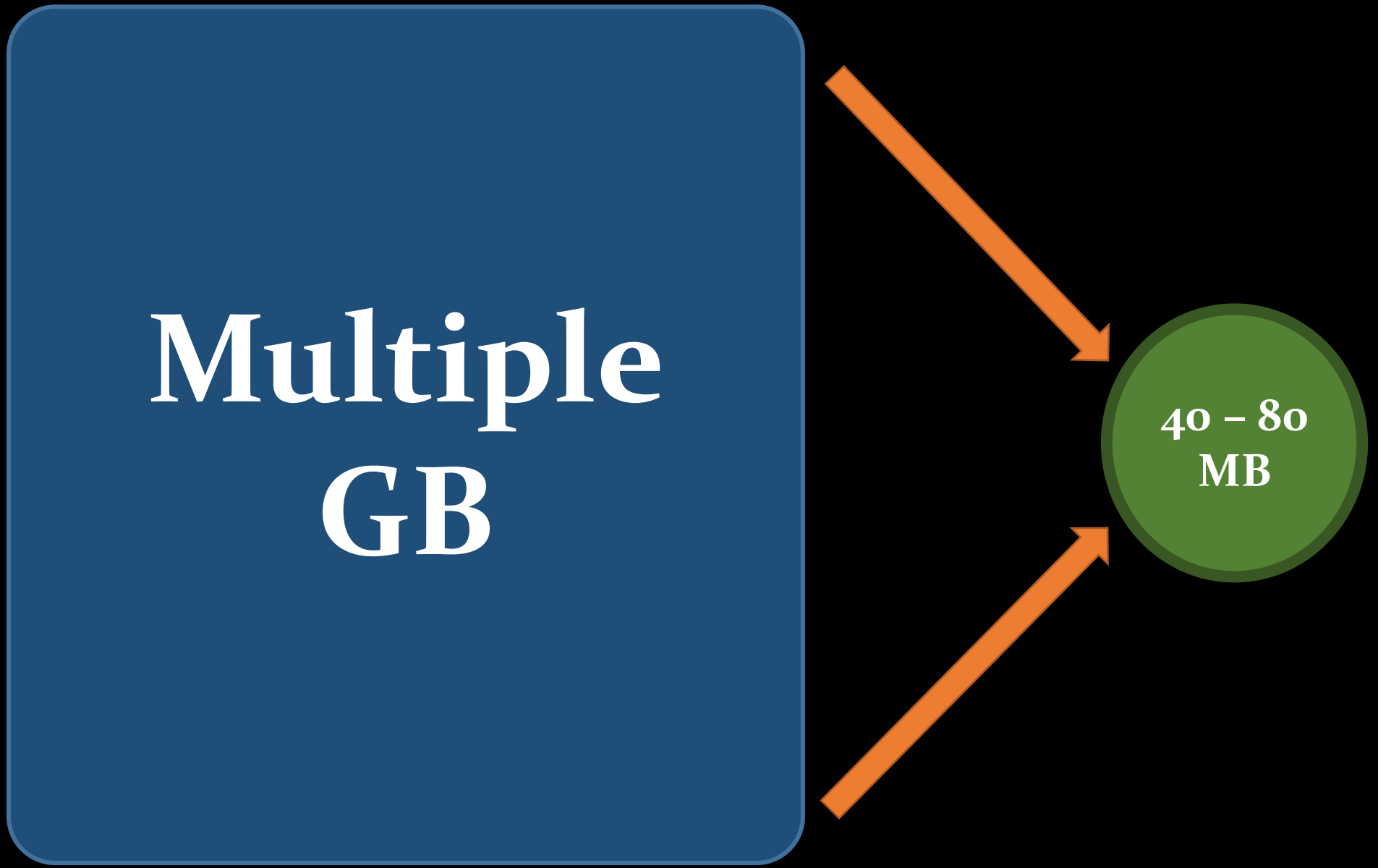
40 – 80 MB



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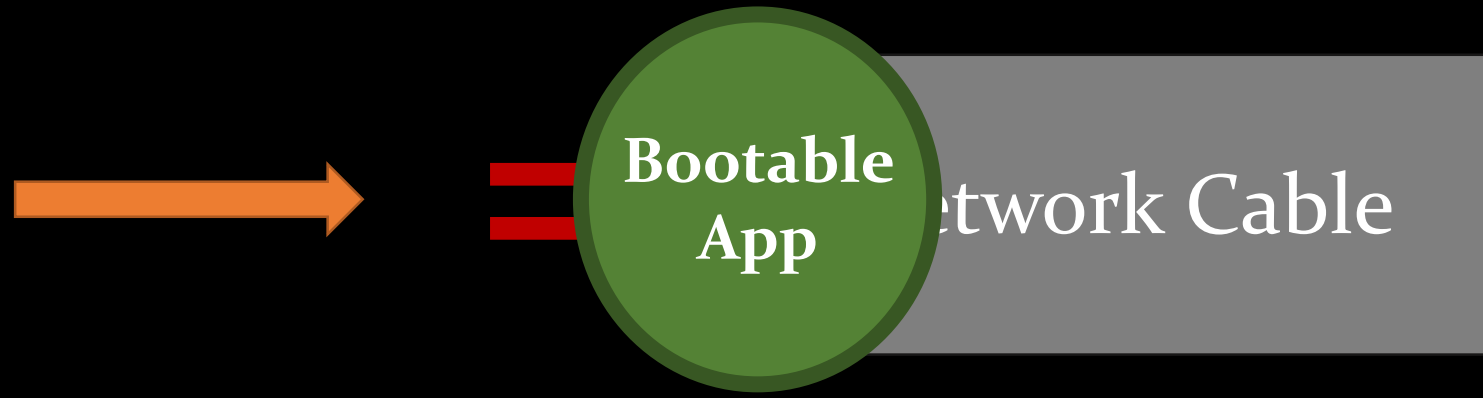

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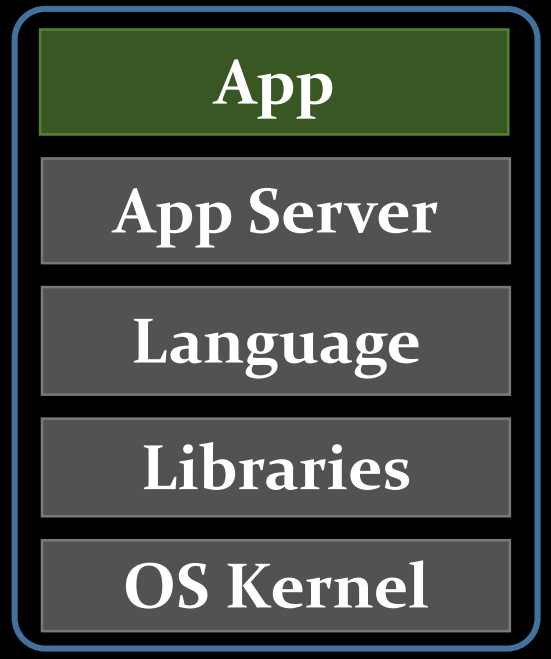
who is this for ???



12-factor app

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demo

what is the big change ???

Focus shift

Server Service

Individual servers become disposable

Treat servers like cattle instead of pets

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Treat servers like cattle instead of pets

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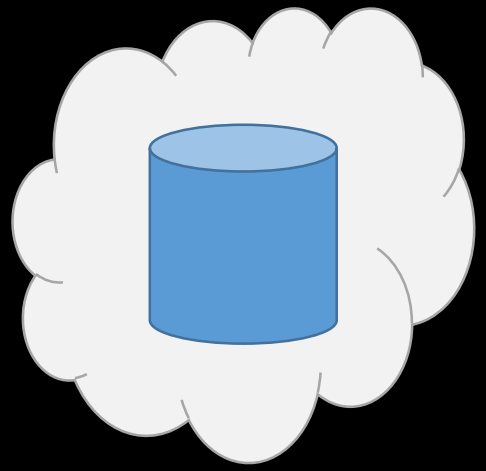
what about the database ???

Flyway



what about the logs ???

Bootable
App

what about sessions ???

Session in cookie

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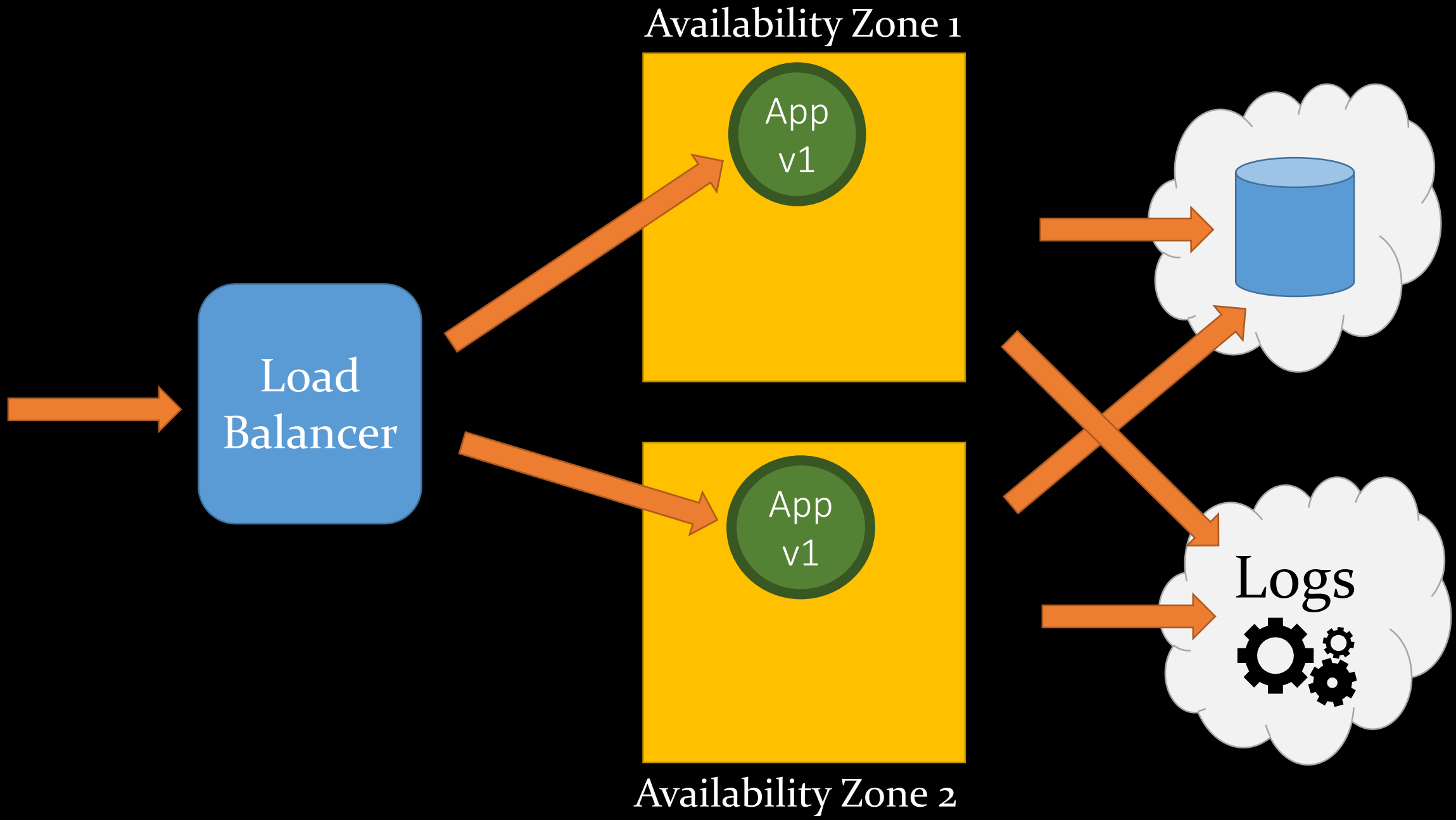
what about the new versions ???


Availability Zone 1
App
v1
Load
Balancer
App
v1
Logs
Availability Zone 2
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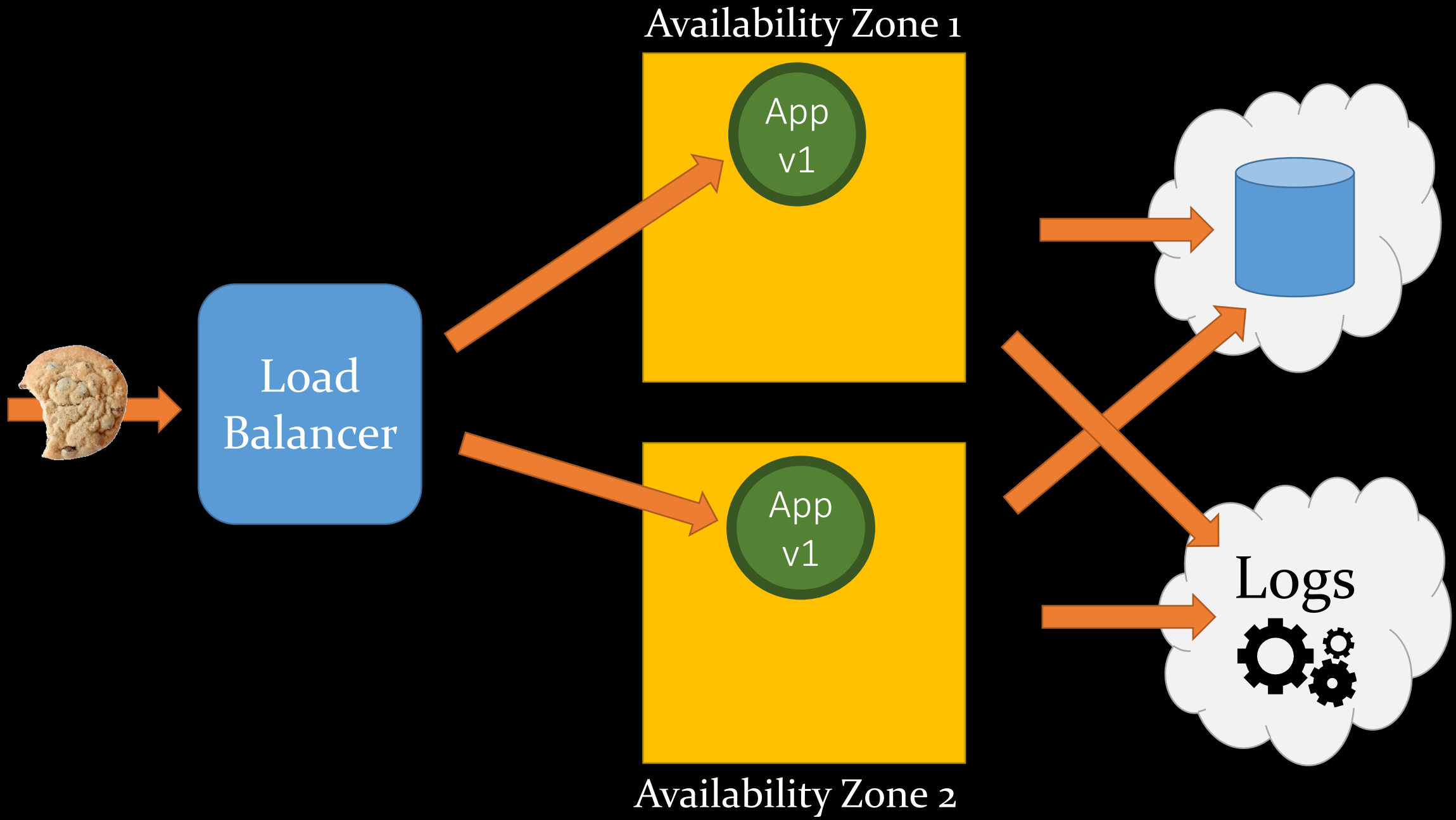
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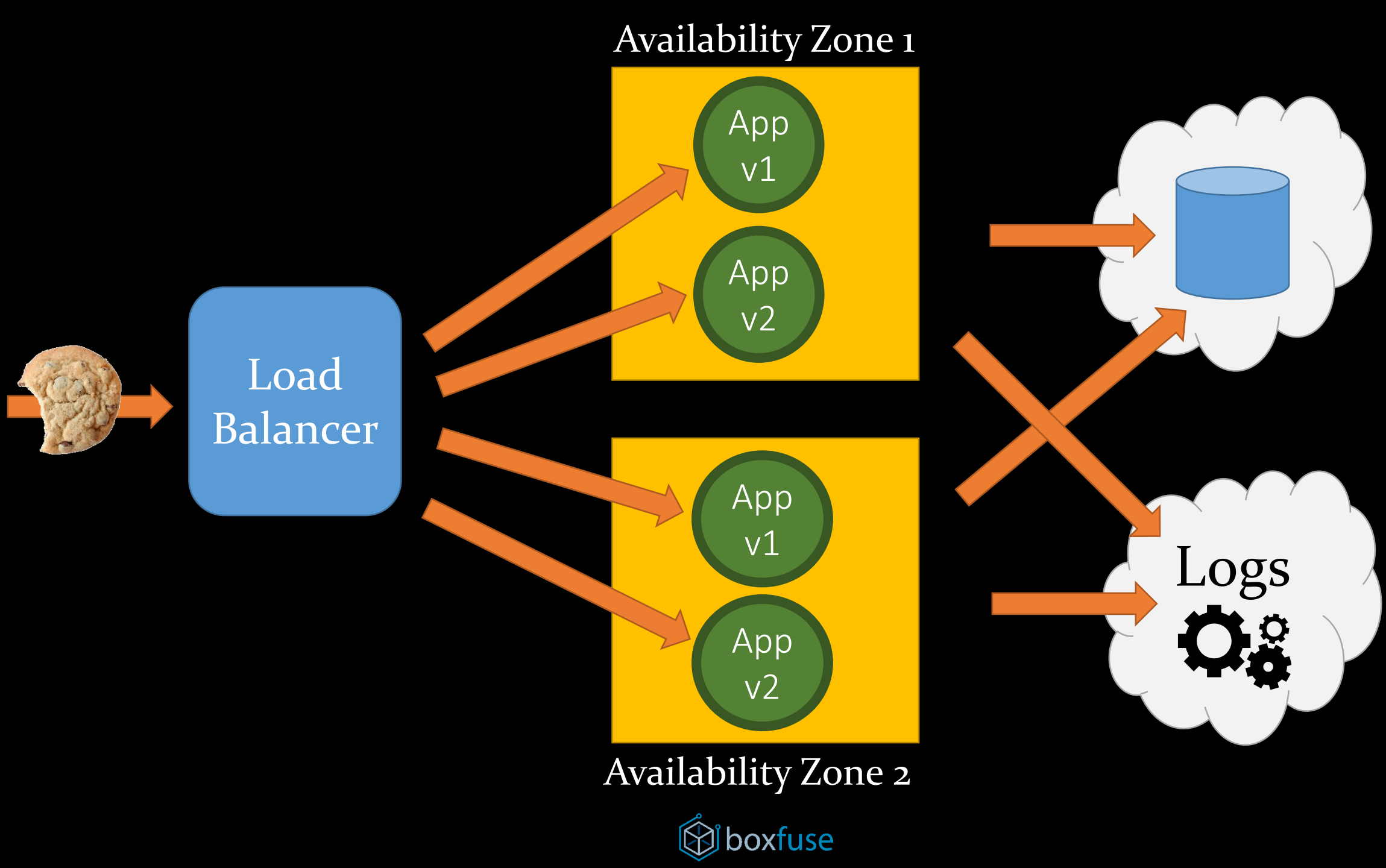
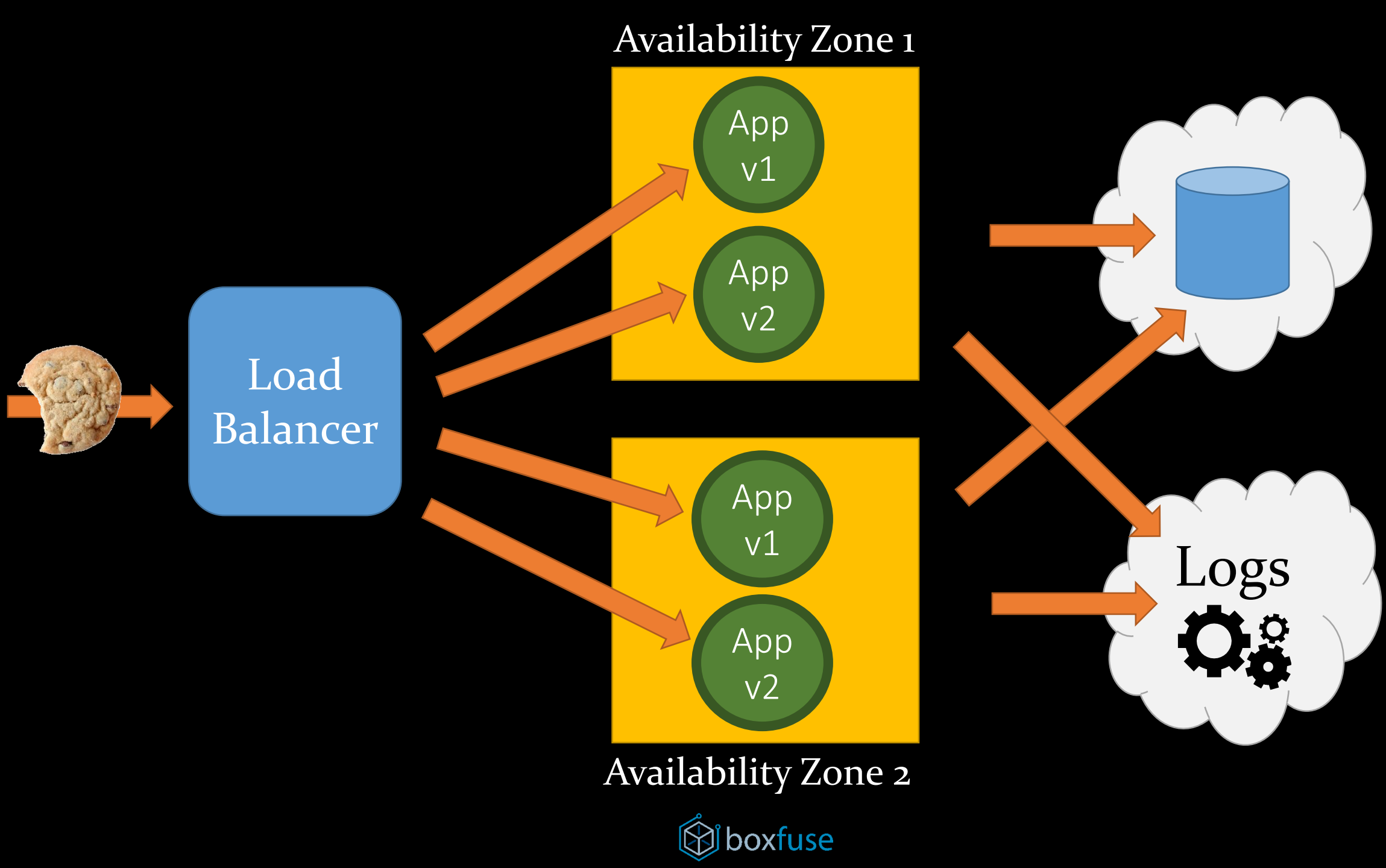
boxfuse


Availability Zone 1
App v1
App v2
Load Balancer
App v1
App v2
Logs
Availability Zone 2
boxfuse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App v2
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App v2
Logs
Availability Zone 2
boxfuse

summary

- One immutable unit
- Regenerated after every change
- Promoted from Environment to Environment

Classic Mistake: Build per Environment

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Classic Mistake: Build per Environment

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Thanks !

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