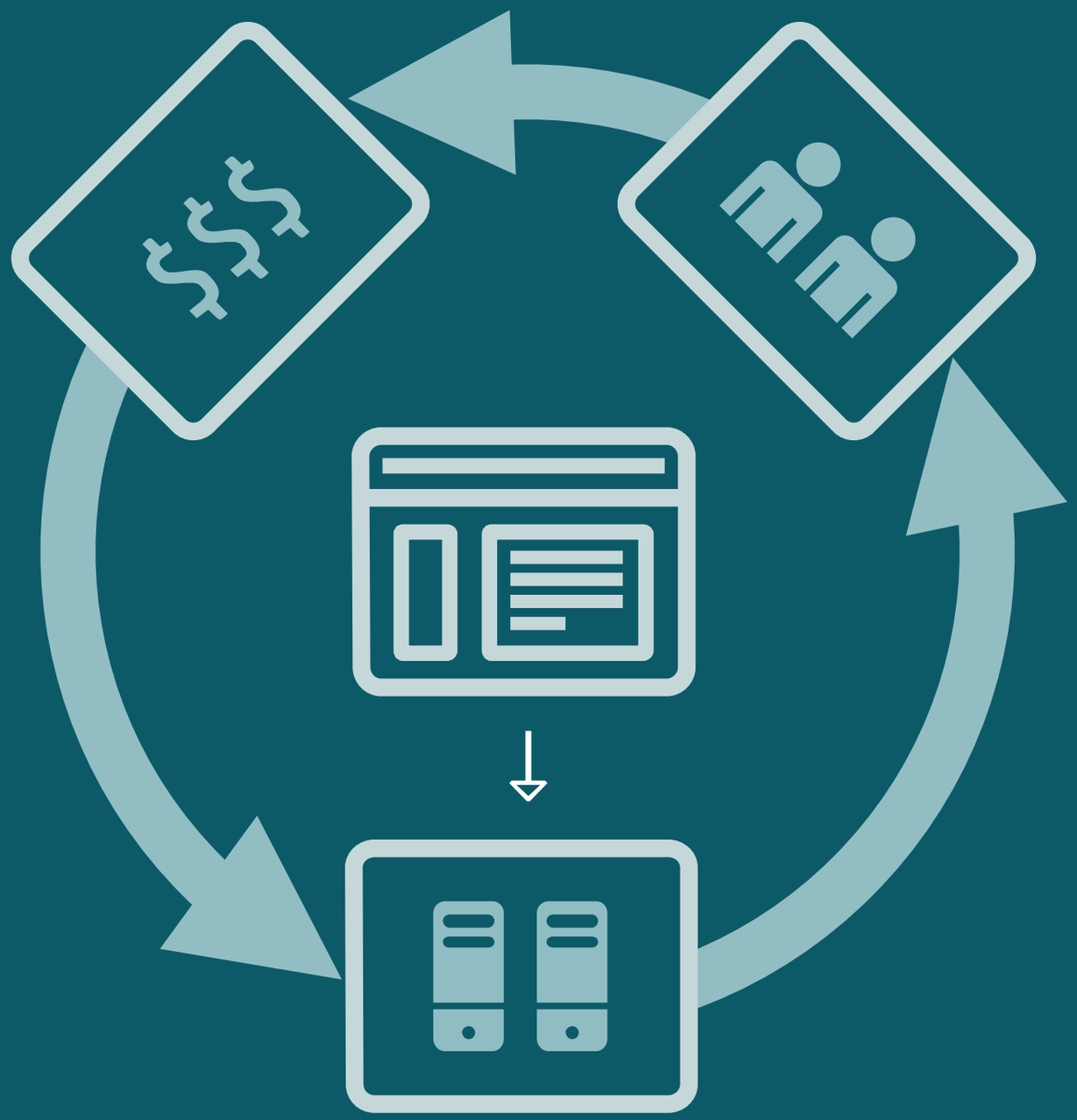
REDUX

THE TWELVE-FACTOR APP

A METHODOLOGY FOR BUILDING SOFTWARE-AS-A-SERVICE APPS

A SOFTWARE STORY



THE TWELVE-FACTOR APP

A METHODOLOGY FOR BUILDING SOFTWARE-AS-A-SERVICE APPS

THE TWELVE-FACTOR APP METHODOLOGY

A METHODOLOGY FOR BUILDING SOFTWARE-AS-A-SERVICE APPS

GOALS

1.

MINIMISE TIME AND COST FOR NEW DEVELOPERS JOINING THE PROJECT

2.

MAXIMISE PORTABILITY BETWEEN EXECUTION ENVIRONMENTS

3.

ENABLE CONTINUOUS DEPLOYMENT FOR MAXIMUM AGILITY

4.

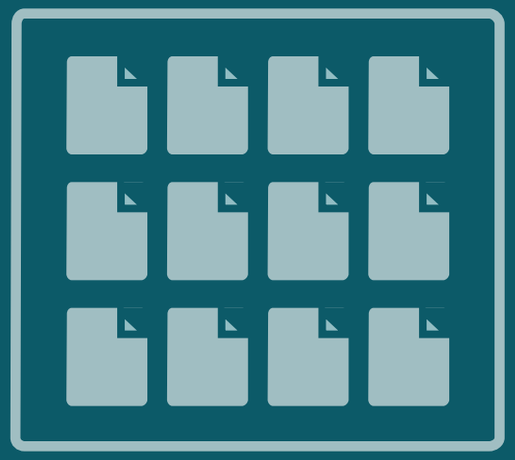
SCALE UP WITHOUT CHANGES TO TOOLING, ARCHITECTURE OR PRACTICES.

THE TWELVE-FACTOR APP

A METHODOLOGY FOR BUILDING SOFTWARE-AS-A-SERVICE APPS

CODEBASE

ONE CODEBASE TRACKED
IN REVISION CONTROL,
MANY DEPLOYS



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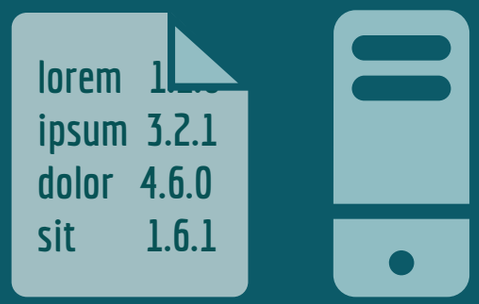
CODEBASE

DEPLOYMENTS

DEPENDENCIES

EXPLICITLY DECLARE AND ISOLATE DEPENDENCIES



DECLARE

ISOLATE

CONFIG

STORE CONFIG IN THE ENVIRONMENT

db_user=…
db_pswd=…
api_url=…

BACKING SERVICES

TREAT BACKING SERVICES
AS ATTACHED RESOURCES

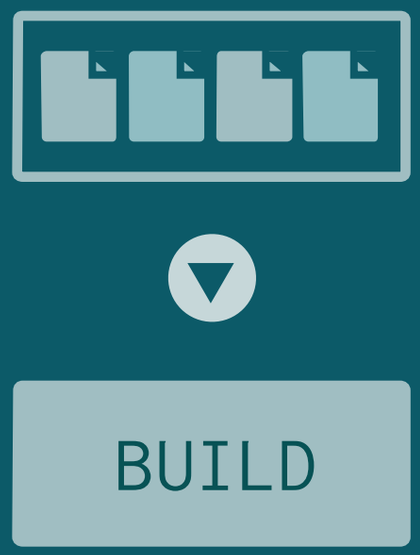
postgresql://localhost/test?user=fred&password=secret

smb://myserver.mydomain.com/Sharepoint/catpics

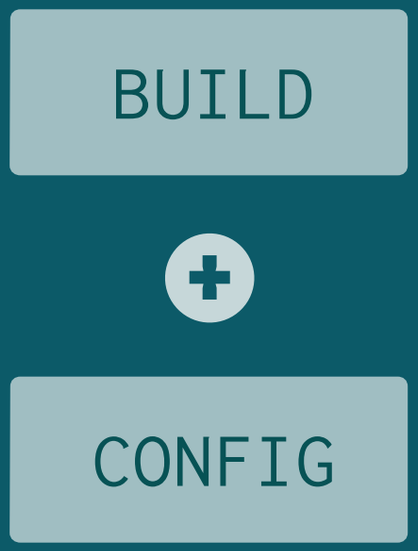
https://api.authenticator.com:9876/app/97yt6772

BUILD, RELEASE, RUN

STRICTLY SEPARATE BUILD AND RUN STAGES



BUILD

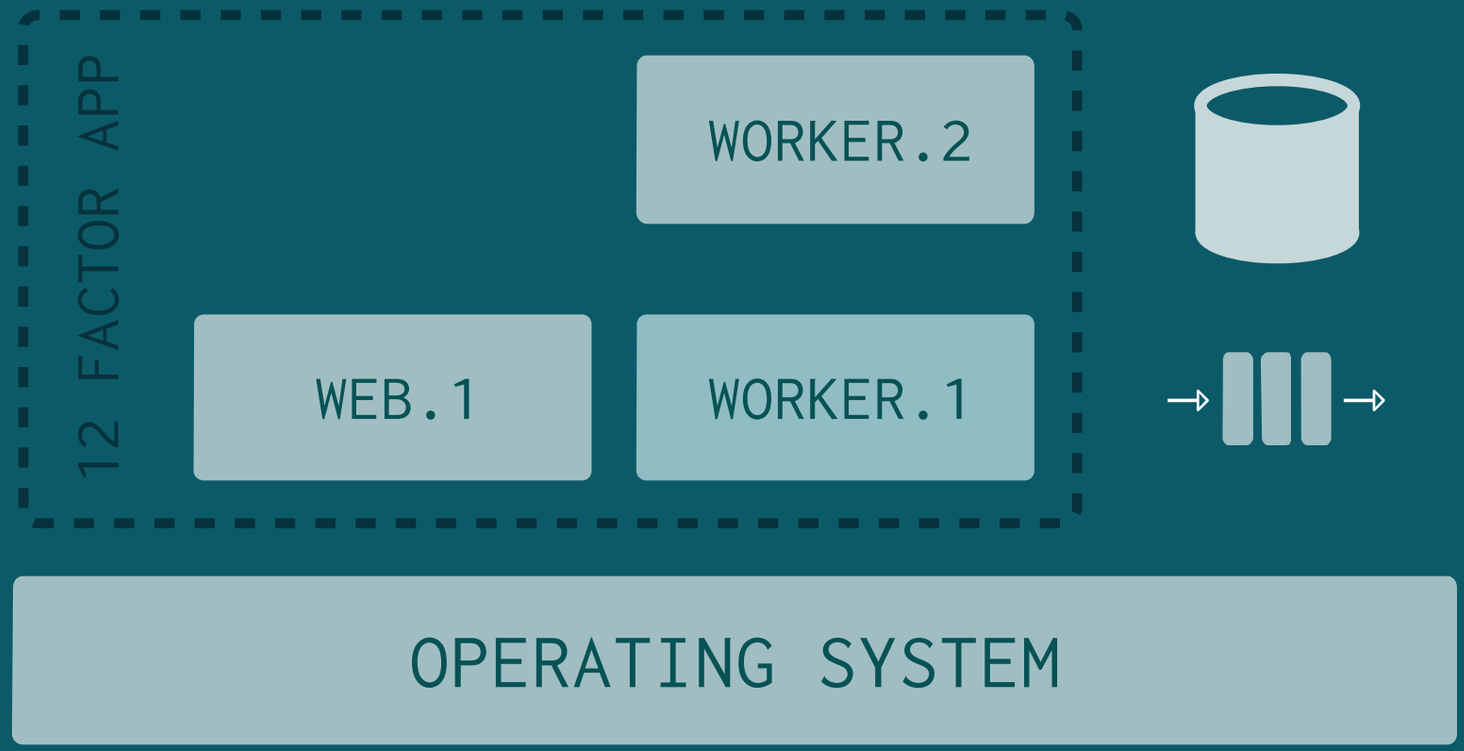


RELEASE

RUN

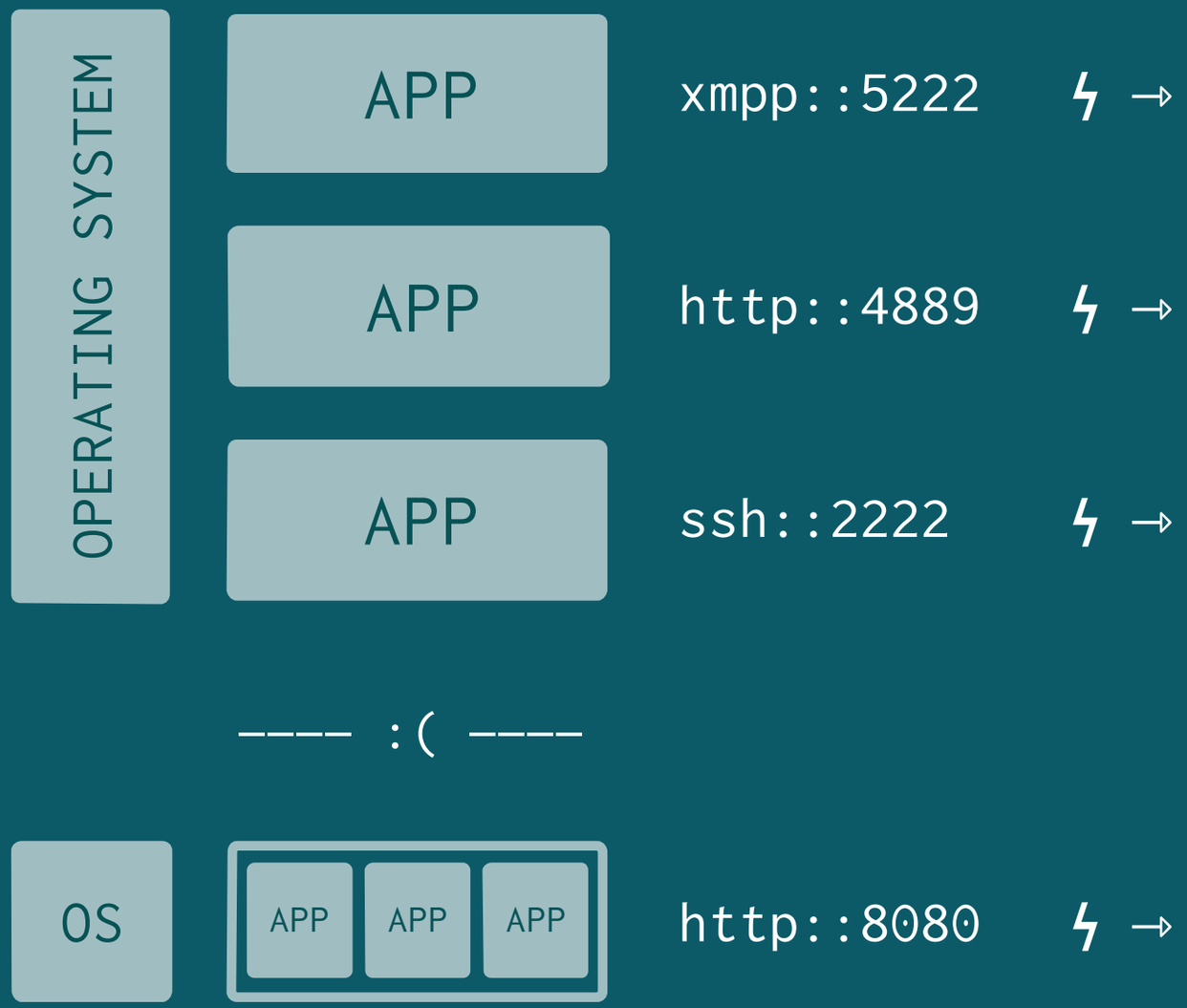
PROCESSES

EXECUTE THE APP AS ONE OR MORE STATELESS PROCESSES


12 FACTOR APP
WORKER.2
WEB.1
WORKER.1
OPERATING SYSTEM

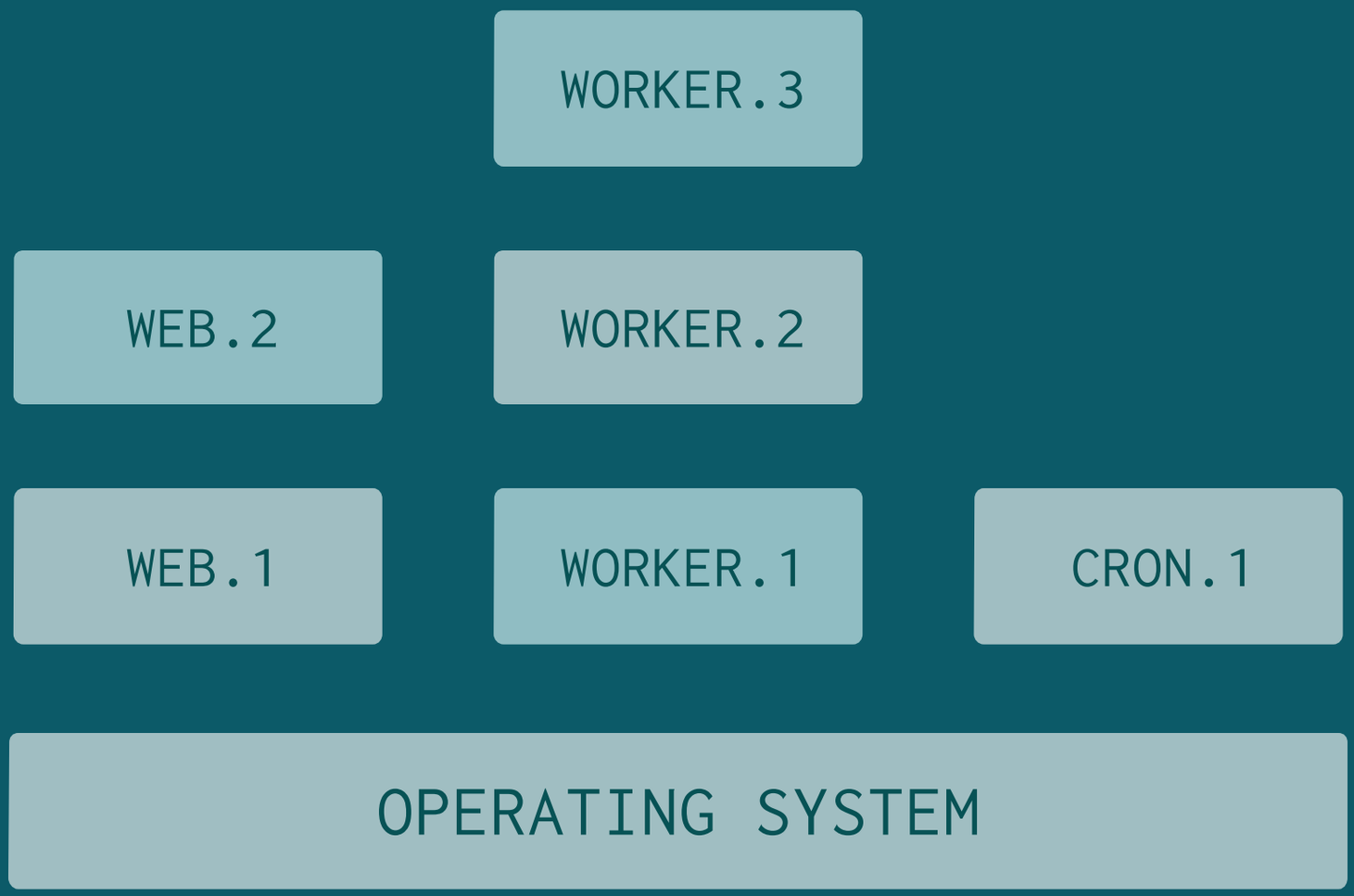
PORT BINDING

EXPORT SERVICES VIA PORT BINDING


OPERATING SYSTEM
APP
APP
APP
xmpp::5222
http::4889
ssh::2222
---- :(----
OS
APP
APP
APP
http::8080

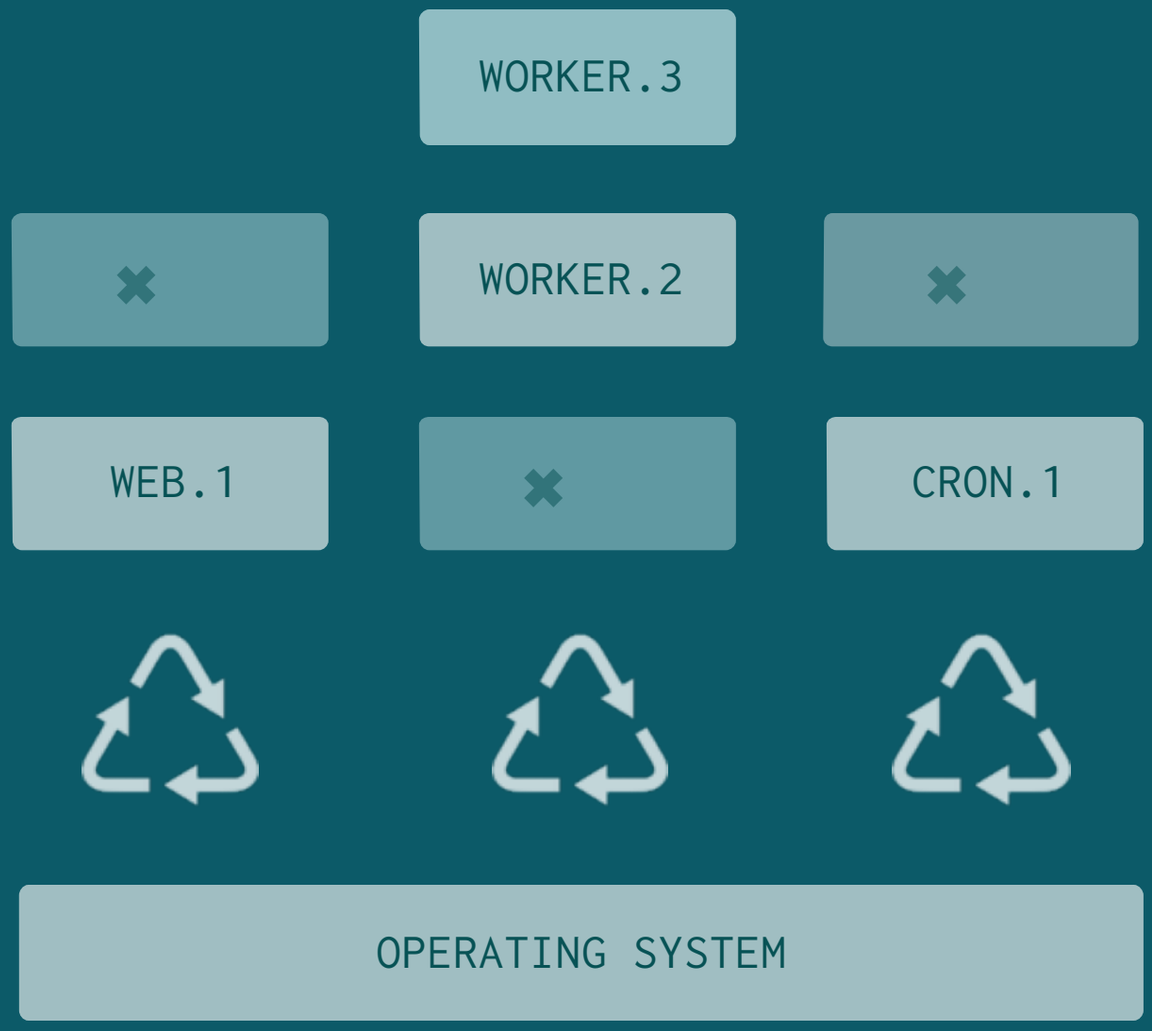
CONCURRENCY

SCALE OUT VIA THE PROCESS MODEL


WORKER.3
WEB.2
WORKER.2
WEB.1
WORKER.1
CRON.1
OPERATING SYSTEM

DISPOSABILITY

MAXIMIZE ROBUSTNESS WITH FAST STARTUP AND GRACEFUL SHUTDOWN


WORKER.3
WORKER.2
WEB.1
CRON.1
OPERATING SYSTEM

DEV/PROD PARITY

KEEP DEVELOPMENT,
STAGING, AND PRODUCTION
AS SIMILAR AS POSSIBLE

OSX
APACHE
MYSQL

DEV

CENTOS
APACHE
MARIADB

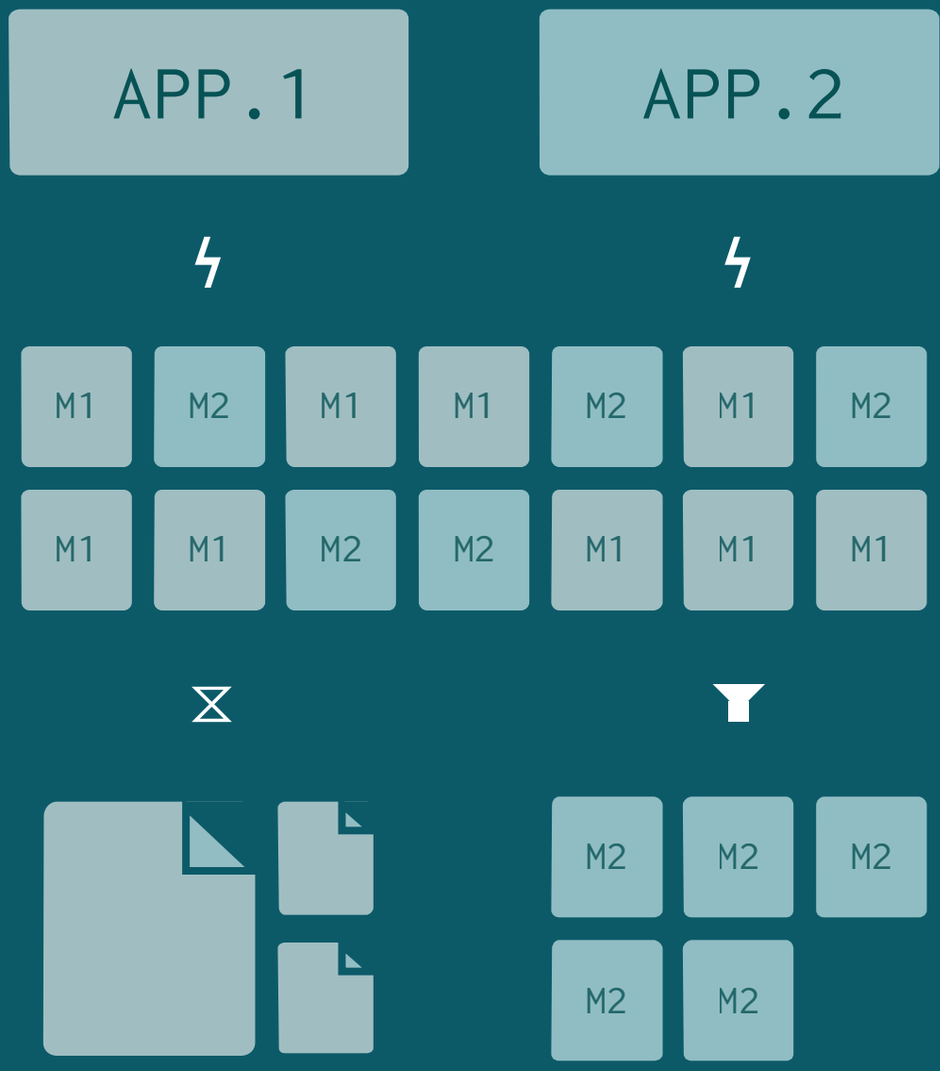
STAGE

REDHAT
NGINX
ORACLE

PROD

LOGS

TREAT LOGS AS EVENT STREAM


APP.1
APP.2
M1
M2
M1
M1
M2
M1
M2
M1
M1
M2
M2
M1
M1
M1
M2
M2
M2
M2
M2

ADMIN PROCESSES

RUN ADMIN/MANAGEMENT TASKS AS ONE-OFF PROCESSES

db:migrate ϟ →

lein repl ϟ →

http://12factor.net