12-FACTOR-APP
BUILD CLOUD READY APPLICATIONS

2018-06-13, UWE EISELE / DIETER BAIER, UAS FRANKFURT

NOVATEC | FRANKFURT UNIVERSITY OF APPLIED SCIENCES

The Twelve-Factor App (https://12factor.net)

(From the manifesto itself)

Methodology for building SAAS apps that

§ Use declarative formats for setup automation

§ Have a clean contract with the underlying operating system

§ Are suitable for deployment on modern cloud platforms

§ Minimize divergence between development and production

§ Can scale up without significant changes to tooling, architecture or development practices

Can be applied to apps written in any programming language, and which use any combination of backing services.

It is a triangulation on <u>ideal practices for app development</u>, paying particular <u>attention to the dynamics of the organic growth of an app over time</u>, the <u>dynamics of collaboration between developers</u> working on the app's codebase, and <u>avoiding the cost of software erosion</u>
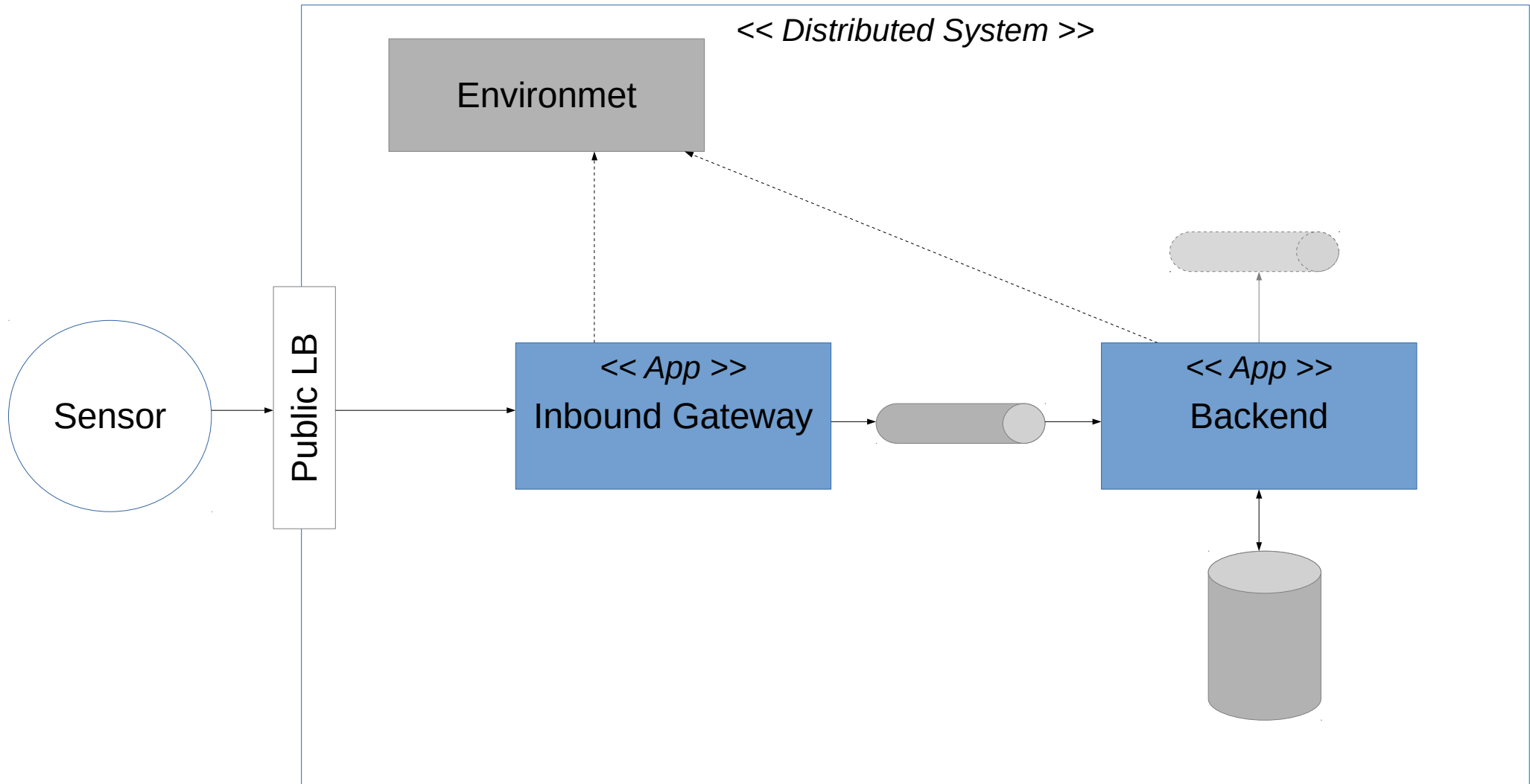
The smart fridge – an example from IoT

§ The fridge recognizes new products put into it

§ The fridge recognizes if products where taken from it

§ The fridge orders missing products on demand

The Twelve-Factor App – An Example
https://github.com/ntuas

<< Distributed System >>

Environmet

Public LB

Sensor

<< App >>
Inbound Gateway

<< App >>
Backend

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The Twelve-Factor App (https://12factor.net)

One codebase, many deploys

I
Codebase

Strict seperation of the three dev-steps – no way to change the app during runtime

V
Build, release, run

Can be started or stopped at a moment's notice

IX
Disposability

Never relies on implicit existence of system-wide packages

II
Dependencies

Stateless and share nothing

VI
Processes

Use the same backing services in all stages

X
Dev/prod parity

Strict seperation of code and config

III
Config

Is completely self-contained and doesn't rely on runtime services

VII
Port binding

Logs to the output stream and doesn't concern of ist storage

XI
Logs

Doesn't distinct between a local or remote service

IV
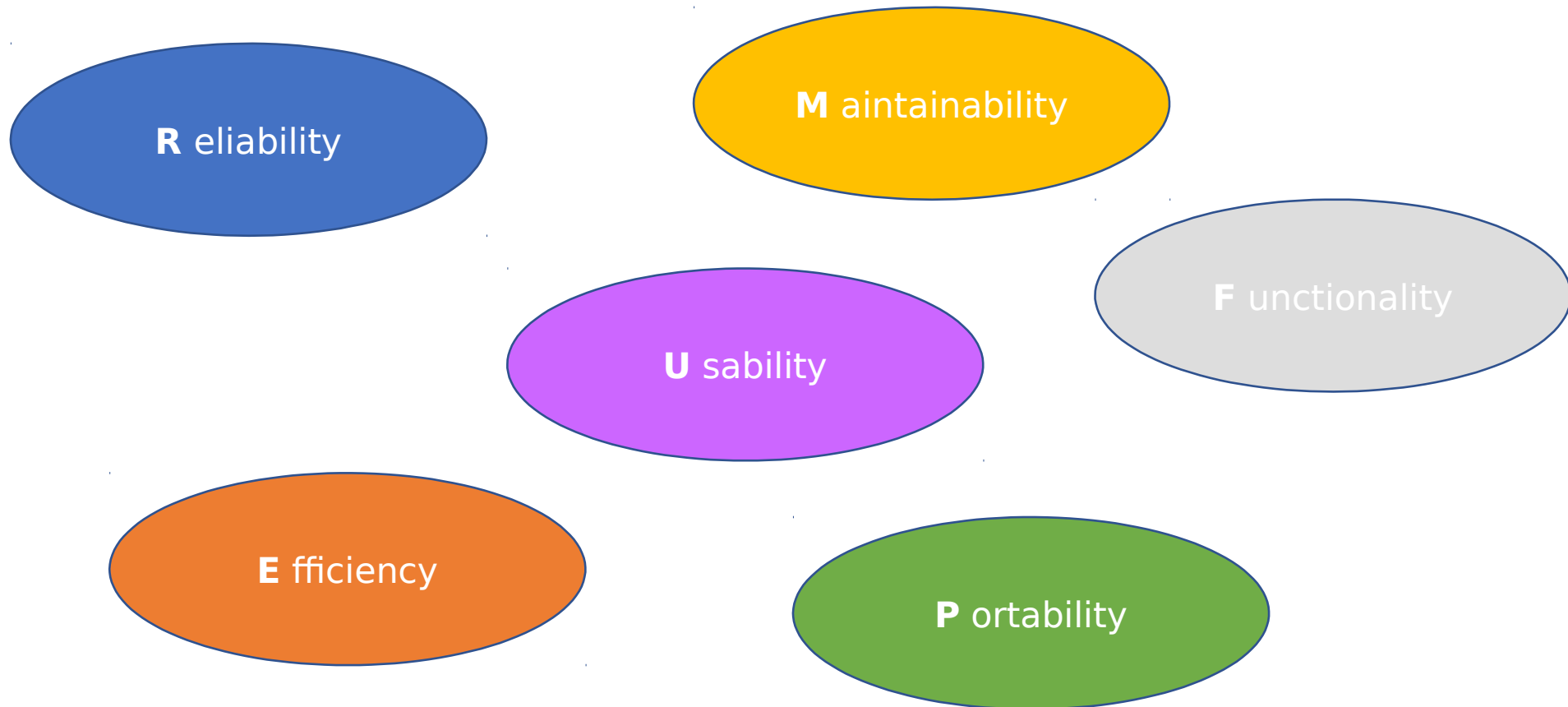Backing Services

It's processes are 'first class citizens'

VIII
Concurrency

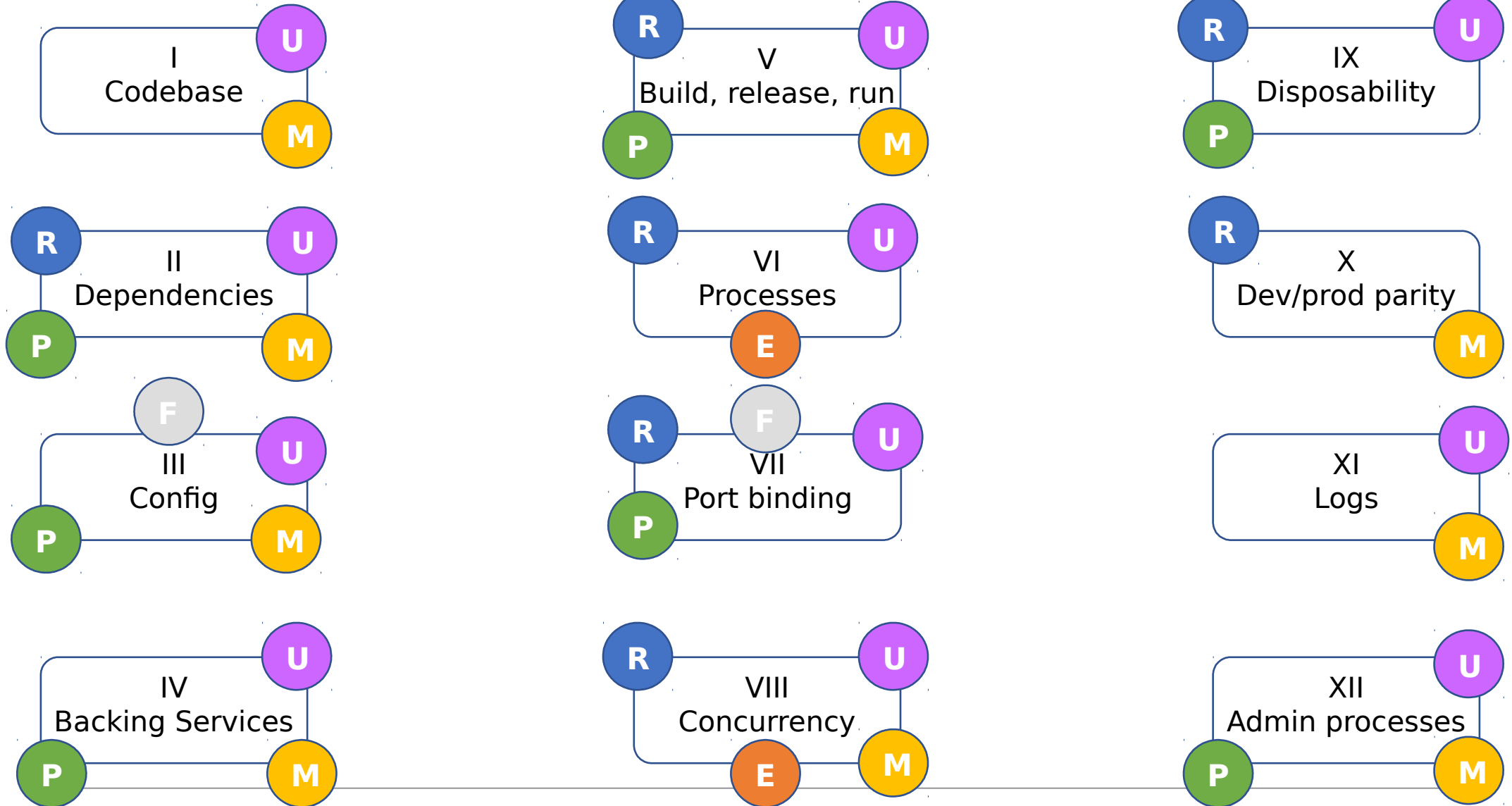*Provide possibilities to run one-time-tasks within the same environment*

XII
Admin processes

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12-FACTOR-APP EXERCISE

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The Twelve-Factor App – An Example

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<< Distributed System >>

Environmet

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Sensor

Telegr
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<< App >>
Inbound Gateway

<< App >>
Inbound Gateway
Telegram

<< App >>
Backend

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