

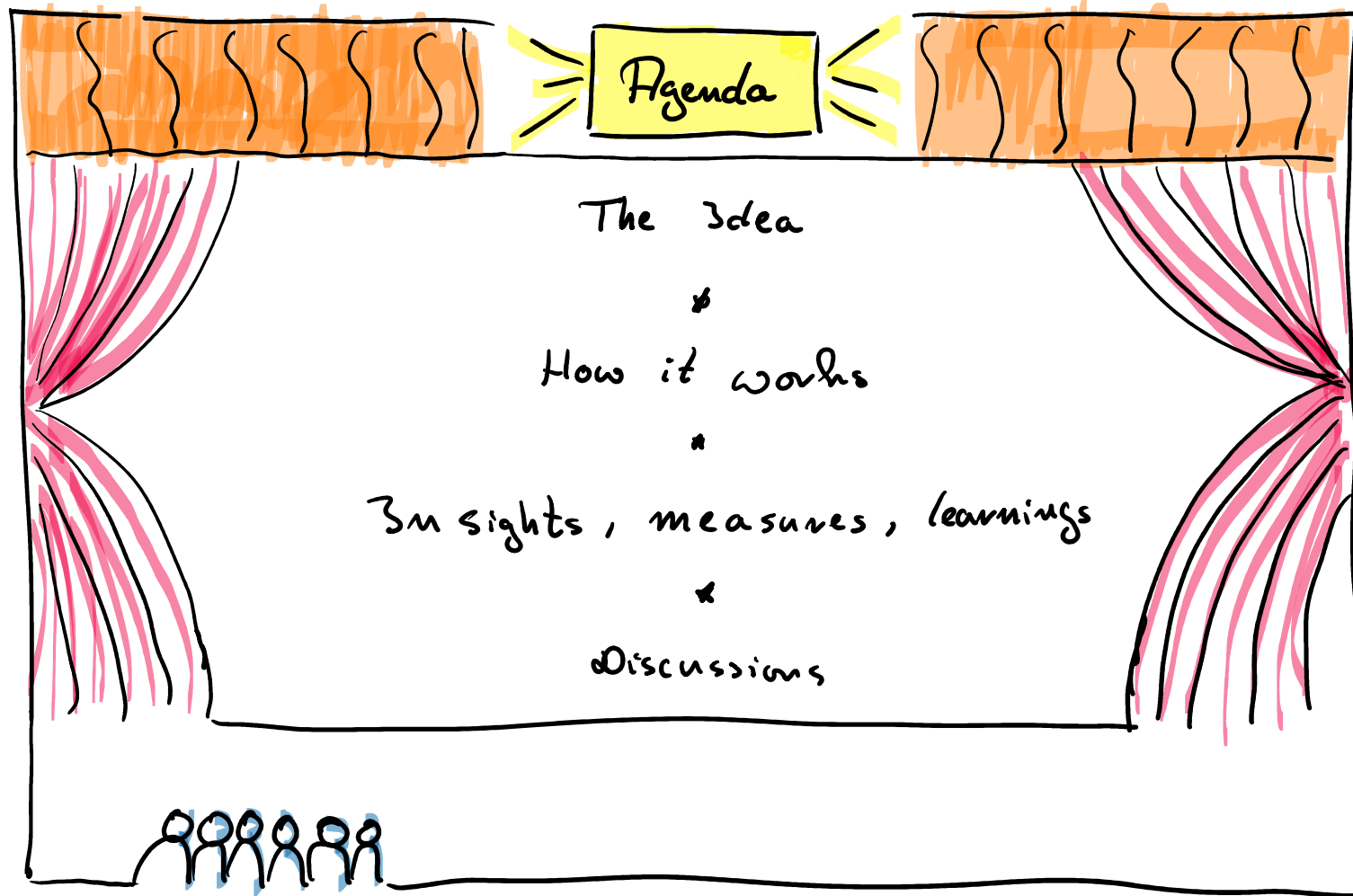
CO₂ - Challenge



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IT and software companies
reduce emissions of their software
by 40% within one year.



Mentoring



Catalog of measures



Challenge, no competition



Low threshold, easy access

Companies



andrena
OBJECTS

bluehands
[+] Softwareentwicklung



EGOTEC®

EnBW

esentri



generic||de
the clean code company

INFOKOM
IT-SERVICE



konmedia

MAINTITION
FOR ENTERPRISE

Navigate AG
Die Internetagentur



qwertiko

raumobil

Röser
Medienhaus

SEEBURGER

ScriptRunner®

SMIGHT

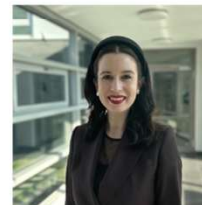
Softwareschneiderei

TeamViewer

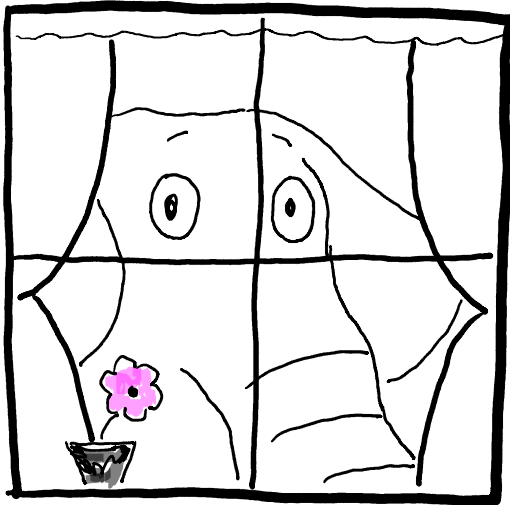
Telemaxx



Mentors



Elephant in the Room



■ $\sim 1/3$ don't get in the way

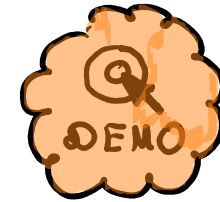
■ $\sim 1/3$ do stuff, but not regularly

■ $\sim 1/3$ run and are successful



Many reasons, majority are active

Process



Kick off with all stakeholders



- Expectation
- Common understanding
- Introduction to Green Software

Creating measures



- Brainstorming, User story mapping
- Evaluation
- Implementation strategy

Insight



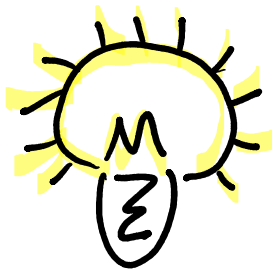
The biggest blockers are the techies



⇒ Explain the context ✓

Insight

Software production generates
more emissions than software
operation



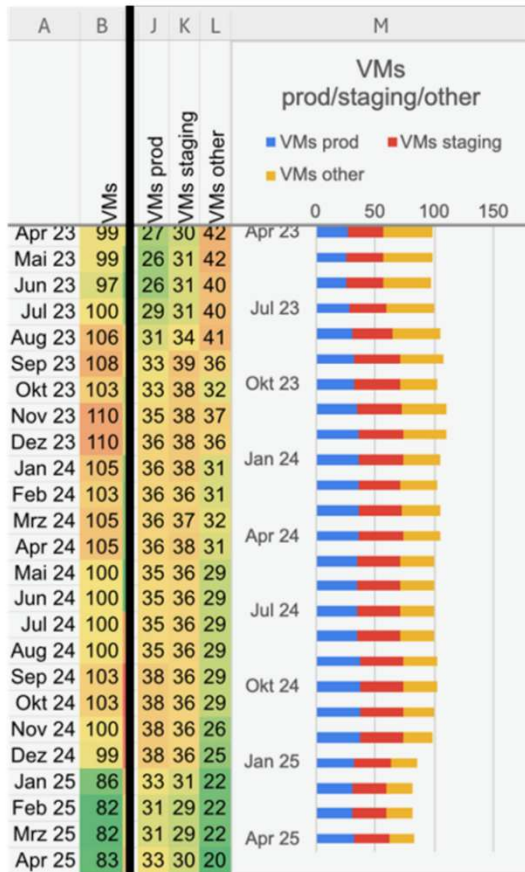
Prod

Staging

Dev

Dev + Staging > Prod

Raumobil



1 VM ~ 60 - 100 kg CO₂/a

50% ~ 40 - 50 VM/a

~ 2,4 - 5,0 t CO₂/a

esentri

Show Case

Infrastructure
Dev
24/7 → on demand
3 days: 8-18
↓ 82% Reduction ↓

SLA - Check

Oracle Builds
25 Builds / Day
Merge on Main
↓ 80% Reduction ↓

Own
Antifactory

Notes

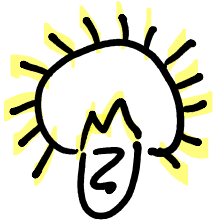
Seeburger
2.000 Core
for Dev

New
Challenges
with Open Stack
and K8s

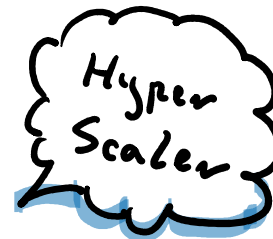
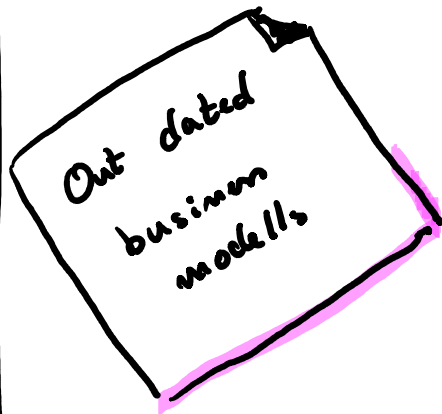
Seeburger
Use out of
Support Hardware
for dev

Prod: 6 CPU, 24 GB
Test: 6 CPU, 12 GB
Dev: 6 CPU, 12 GB

DD
64 CPU
128 GB



Dynamic use of resources not possible with "Usual data center"



Use - Case

Server - Consolidation

Migration

VM $\rightarrow$ h8s

What we see

Server - Utilization

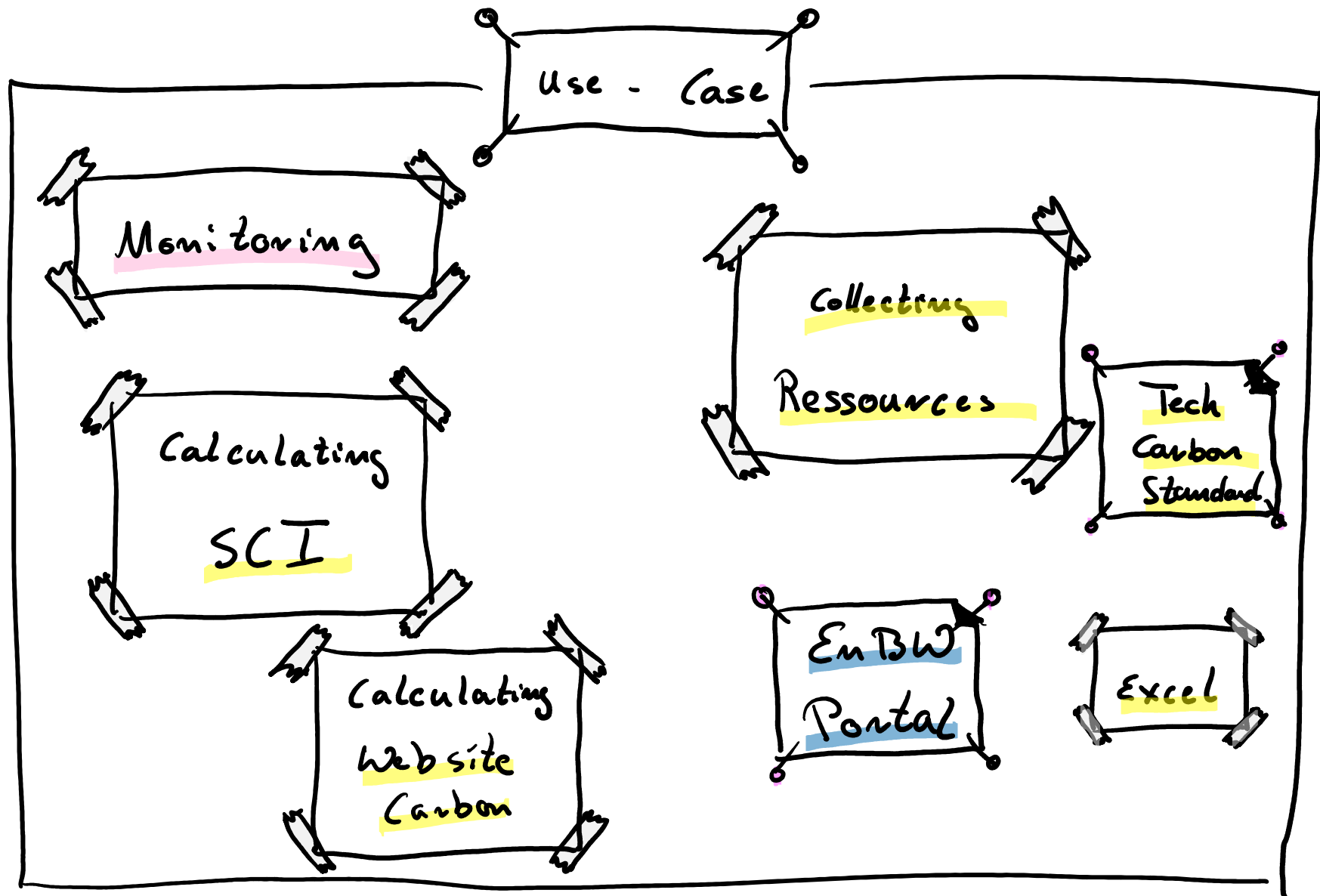
10% - 20%

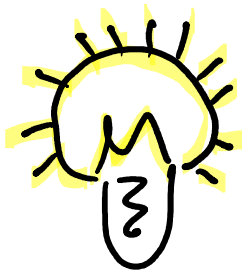
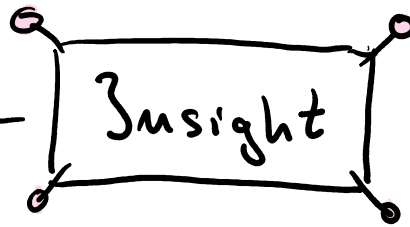
En Bw

Data center relocation

Consolidation

Merging





Project group is essential
for success

First Step: Community-Building
with all stakeholders

- Development
- Operations
- Management

En BW

Approved & supported
by CIO

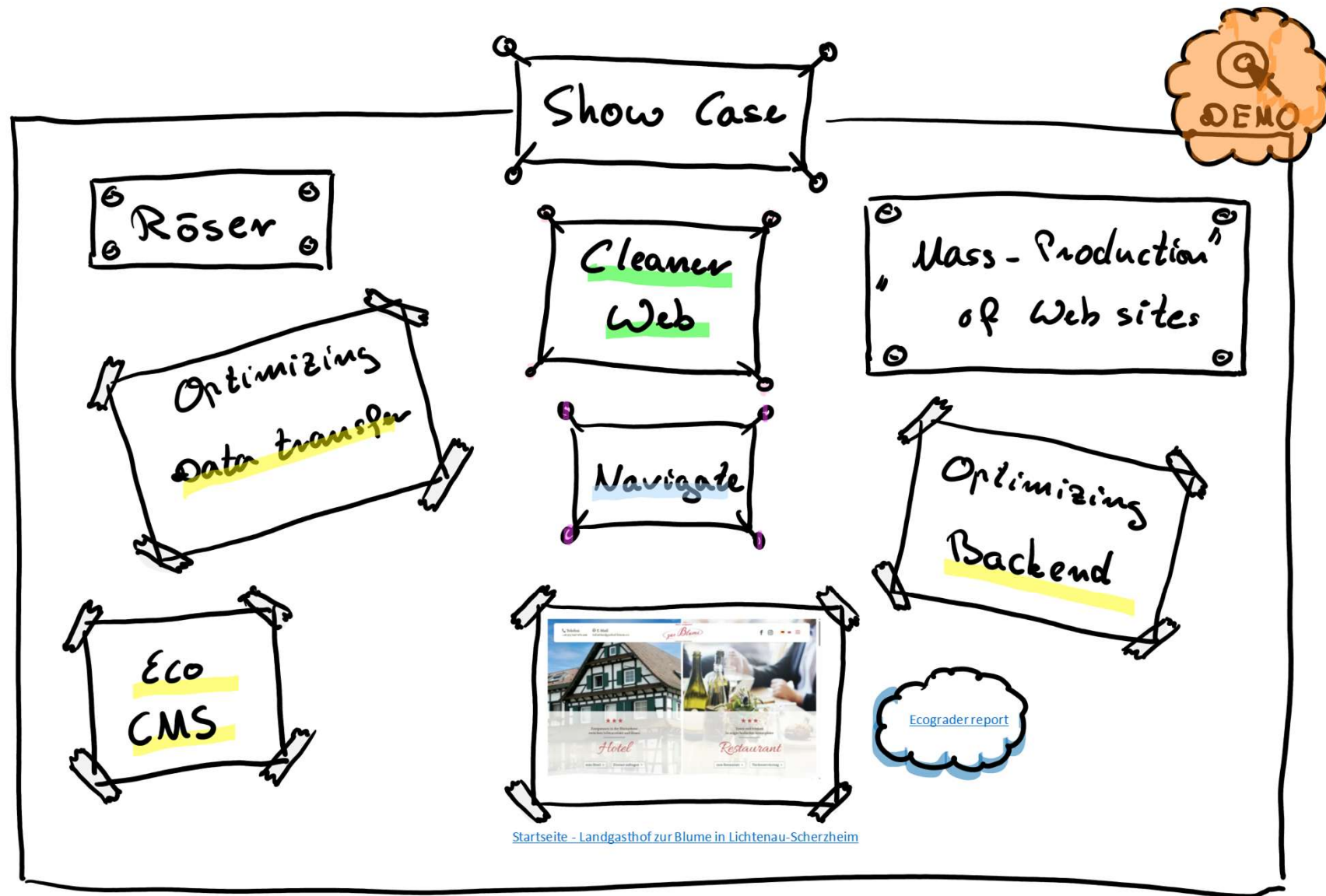
Kompetenz - Center
Nachhaltige IT
3 Persons

New
Every L1 must
deliver
10% - 40%

transparency

Fin Ops
to
Green Ops

New
Green Software
must be
considered



Show Case

Telemaxx

Replacement
USV

400 MWh
 $\Rightarrow 153 \text{ tCO}_2$

Optimally
adjusted Cooling

1.700 MWh
 $\Rightarrow 651 \text{ tCO}_2$

PPA for all
Data Centre

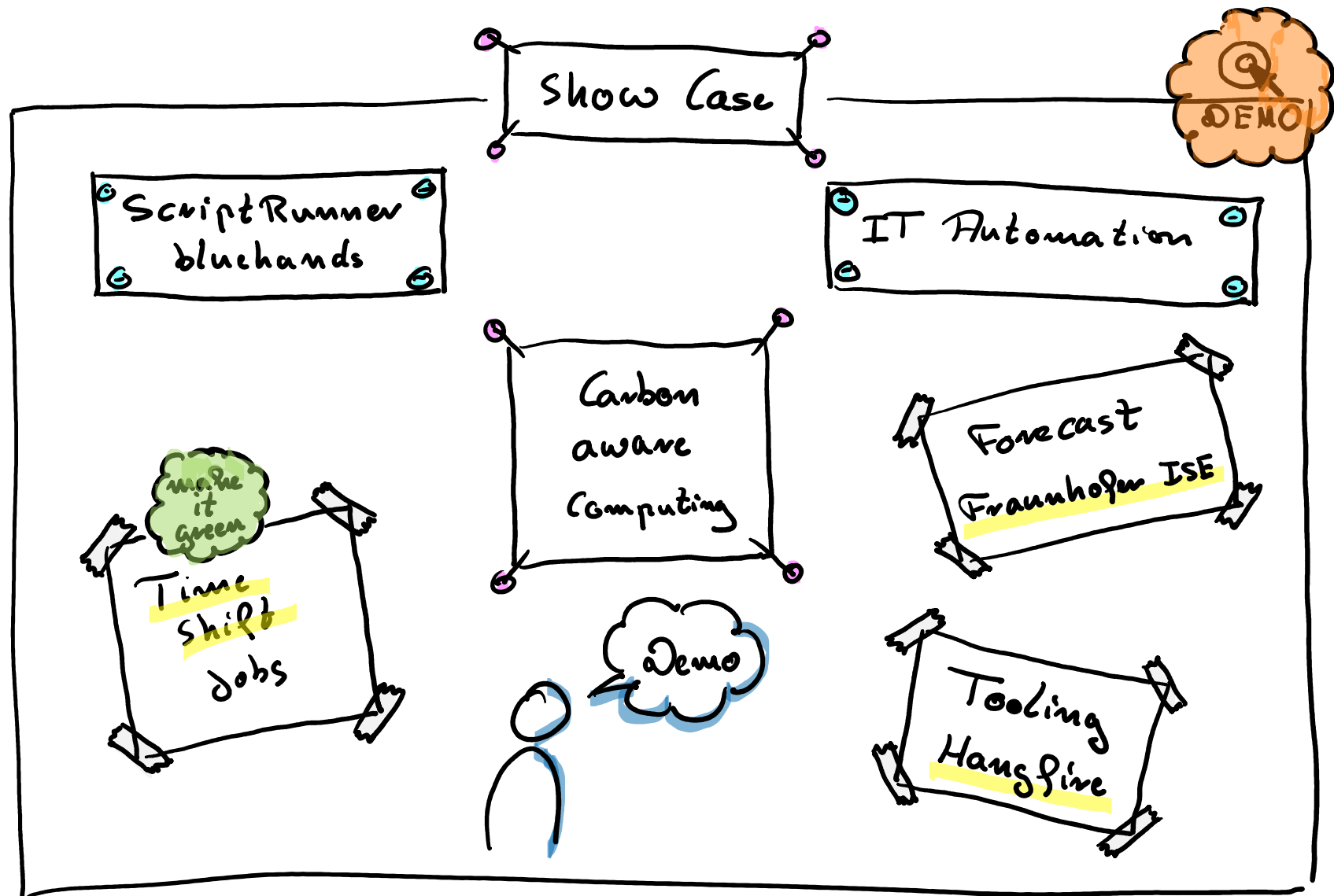
30 GWh $\Rightarrow 11.310 \text{ tCO}_2$

2 new Chiller

1.200 MWh
 $\Rightarrow 460 \text{ tCO}_2$

Over all

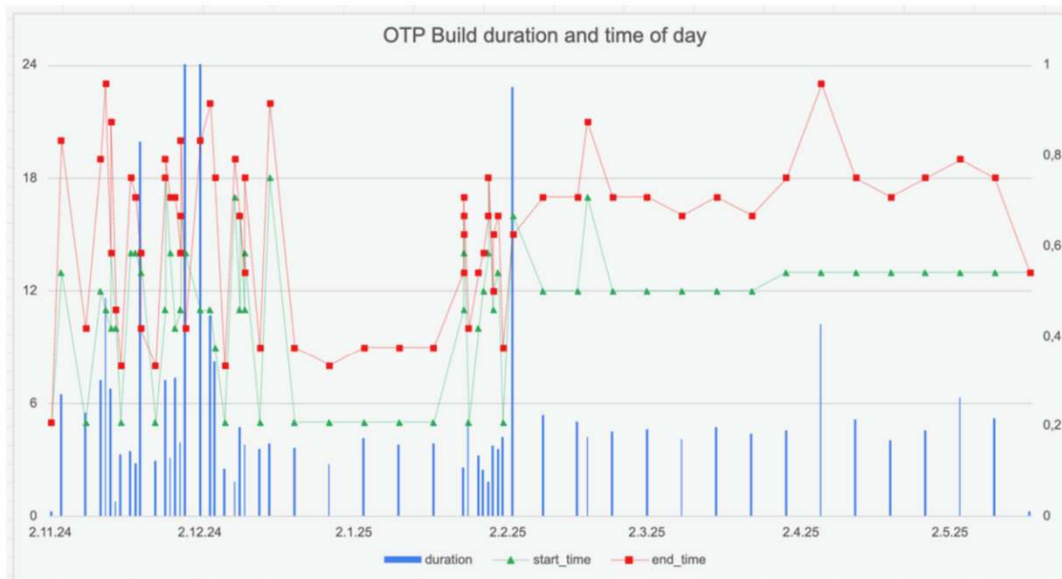
3.300 MWh
 $\Rightarrow 1.264 \text{ tCO}_2$



Show Case

Raumobil

Open Trip Planner



Re-Schedule
Sunday
midday

6 Cores, 128 GB
~ 5810h
Grid 1.6. 130 - 430
 $\Delta 0,658g - 2,158g$

New Standard

Clean Code

Agile

Green

With great power comes
great responsibility

Community



bit.ly/green-dev-ka

