

# **DevOps in der IoT-Entwicklung**

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PRAKTISCH VERTONT

# Thomas Tomow

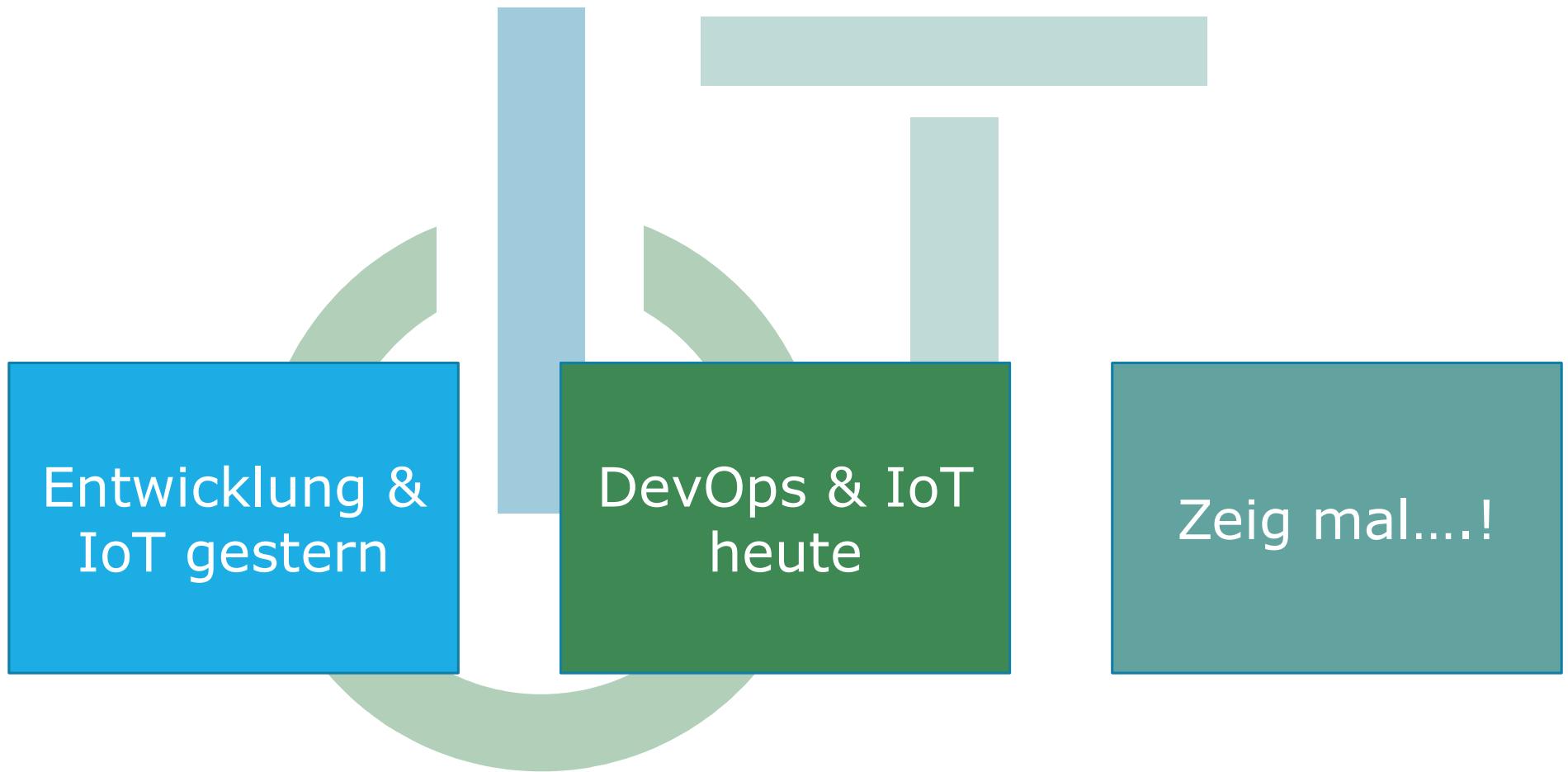
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- Seit knapp 2 Dekaden als Entwickler bzw. Architekt in der IT
- Managing-Consultant bei **Alegri** International Service GmbH
- Cloud-Enthusiast und Technik-affin
- Größte IoT - Herausforderung bisher:  
    Technical Lead bei Vernetzung von Kühlgeräten
- Zertifizierung als MSCSD für ALM
- Zertifizierter Sachverständiger und IT-Forensiker





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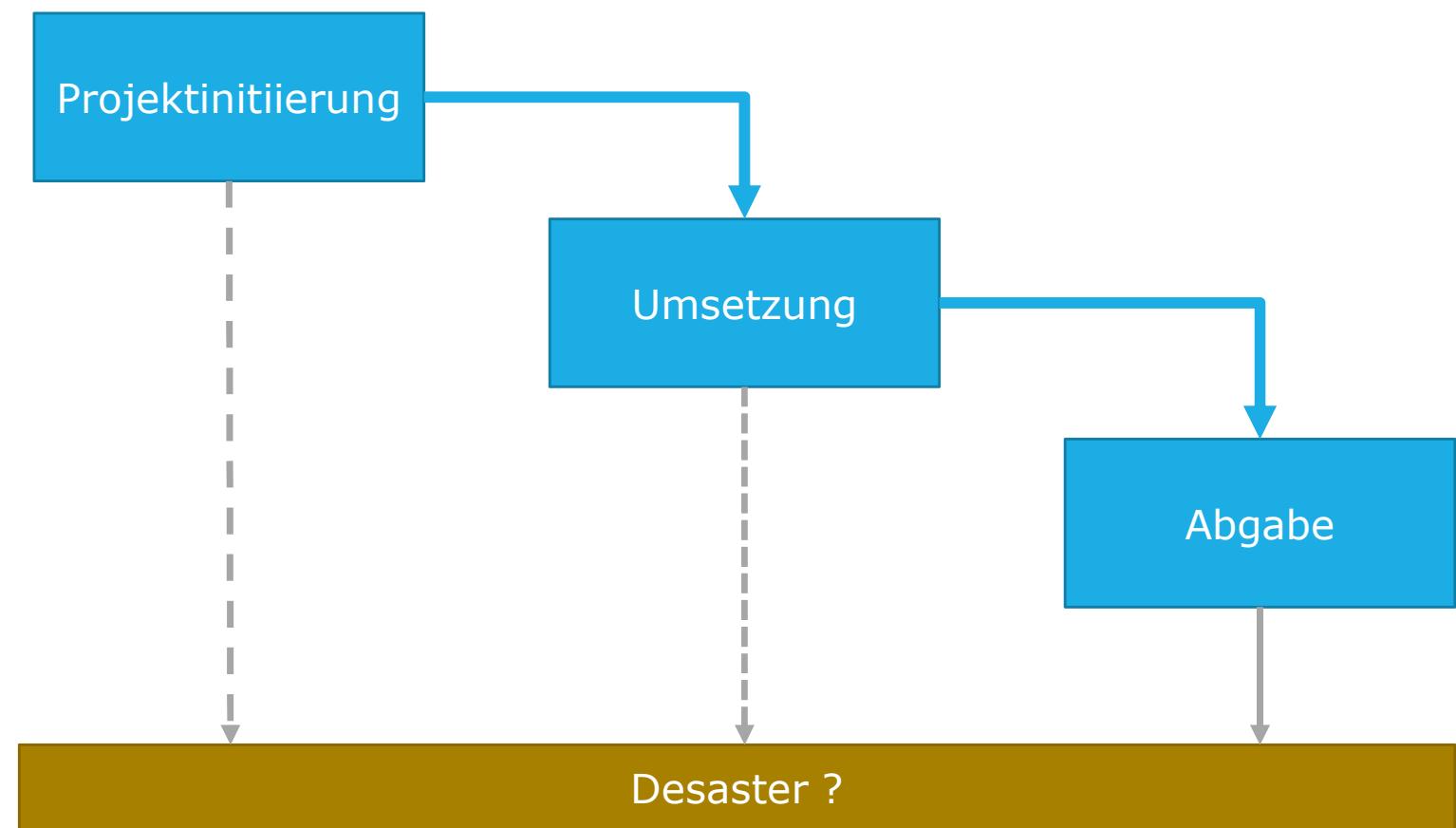
## OLD-SCHOOL DEVELOPMENT

- Dev-Modelle
- Projektkultur
- Besondere Ereignisse

Modern Development

Practice – Demo

## Herkömmliches DEV - Projektphasen





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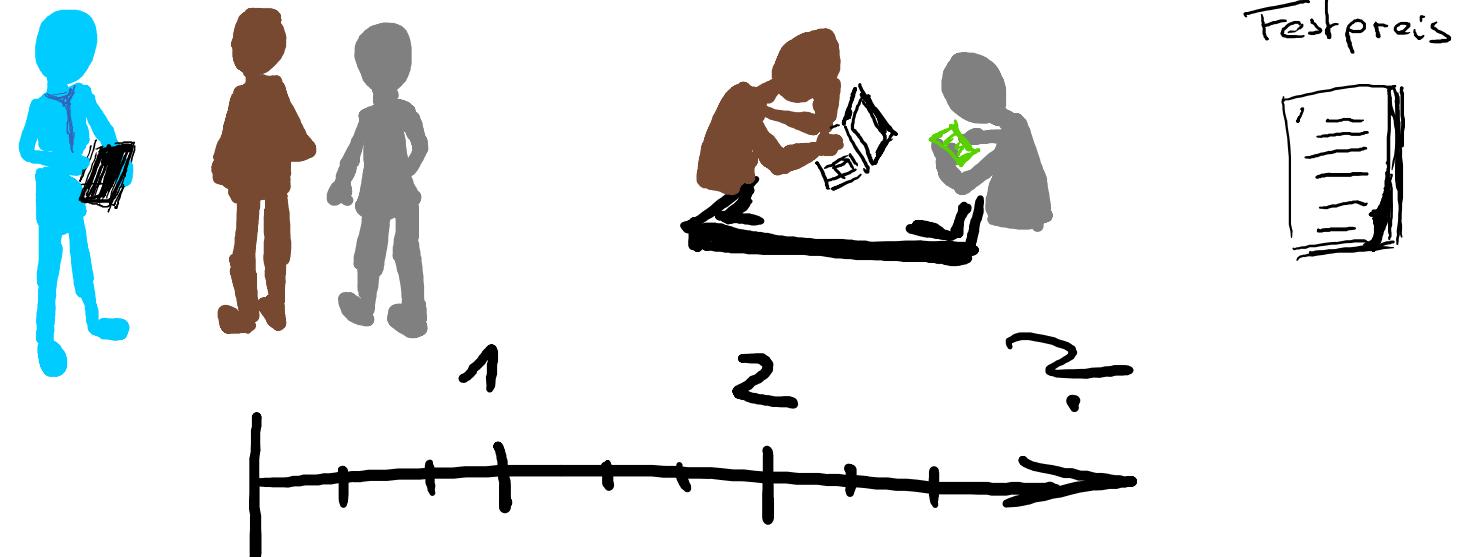
## Modern Development

## Practice – Demo

# Projektinitiierung

### Spezifikation - Lastenhefte

- Langwierige Erstellung
- Langwierige Auswertung
- Lückenhaft





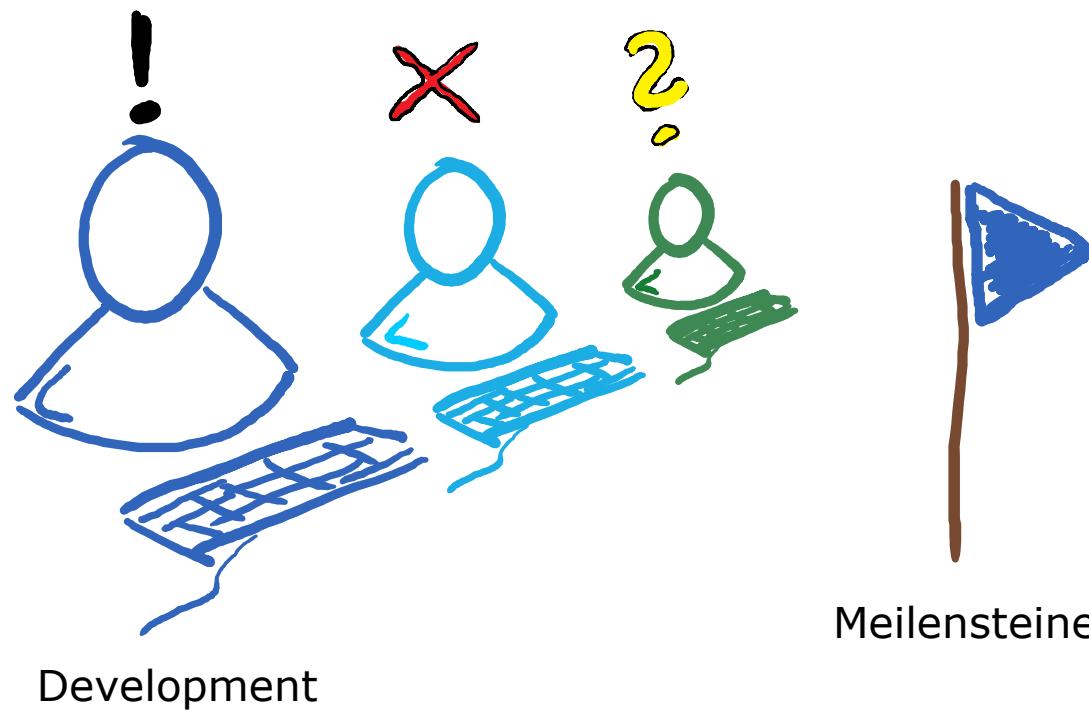
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## Practice – Demo

# Entwicklung





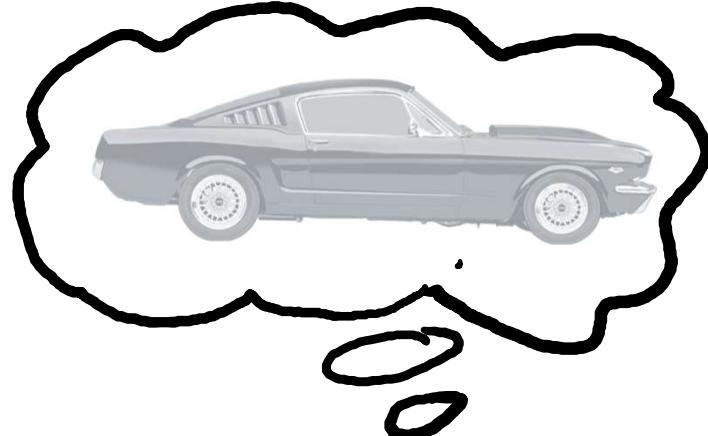
## OLD-SCHOOL DEVELOPMENT

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## Deployment und Abgabe





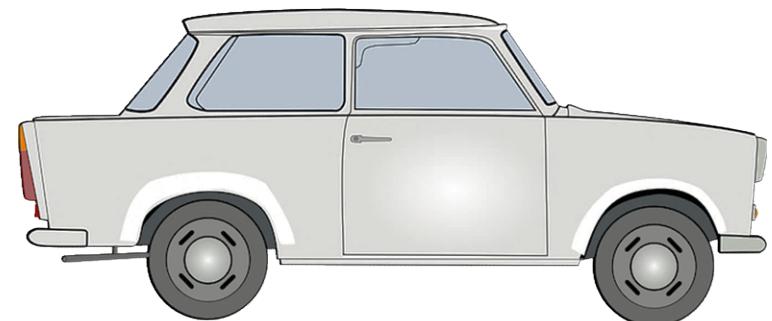
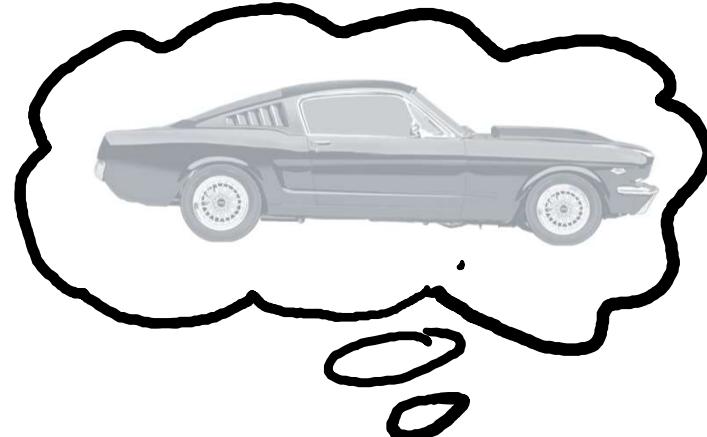
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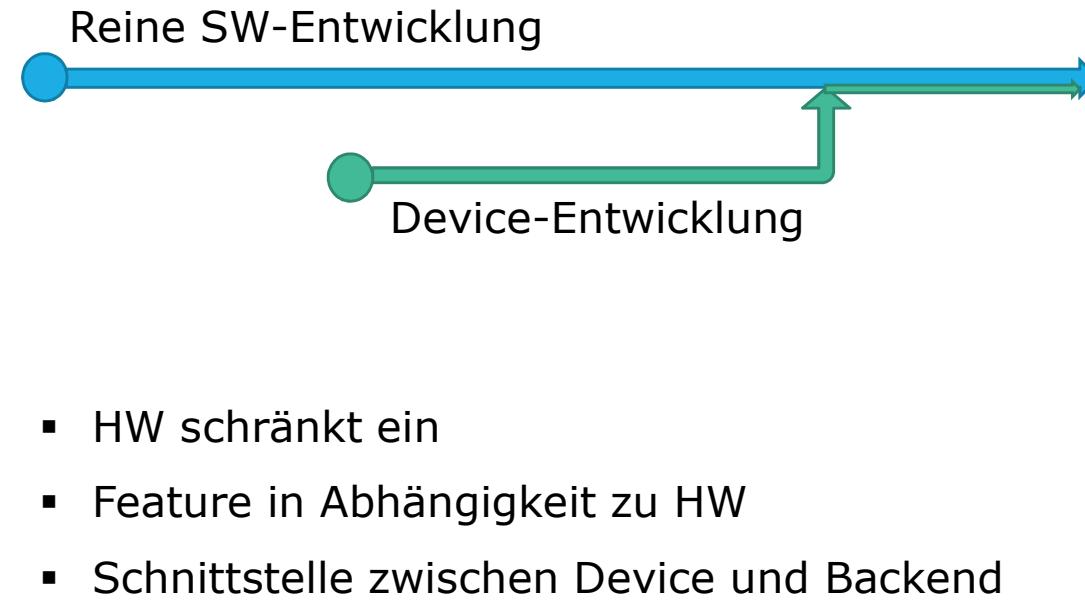
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# Das Spezielle an IoT





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# Das Spezielle an IoT

- Welche Kommunikationspattern benötige ich?
- Bildet das Medium/Technologie entsprechende Pattern ab?
- Muss ich Komponenten in der Architektur vorsehen?
- Welche Technologien lässt das Device zu?
- Wird das Device hinter fremden Firewalls/ Proxys gehostet?
- Ist Zuverlässigkeit gefragt?/ Wie wichtig sind die transportierten Daten?
- Bedingt eine Technologie eine bestimmte Programmierung/-sprache?
- Wie verhalten sich die Kosten bei der einen oder der anderen Architektur?



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# Wandel

## OLD WORLD

Focus on planning

Compete, not collaborate

Static hierarchies

Individual productivity

Efficiency of process

Assumptions, not data

Focus on costs

## NEW WORLD

Focus on delivering

Collaborate to win

Fluid and flexible teams

Collective value creation

Effectiveness of outcomes

Experiment, learn and respond

Focus on speed



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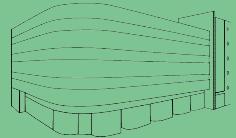
## Resumé

Erfolg war nicht spezifiziert





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MODERN  
DEVELOPMENT

- DevOps - Kultur
- Feedback
- Meassure & Learn
- SCRUM/Agile

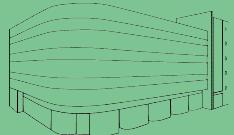
Practice – Demo

# DevOps





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Practice – Demo

# DevOps - Die drei Säulen

Mensch



Prozess

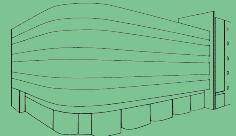


Tools





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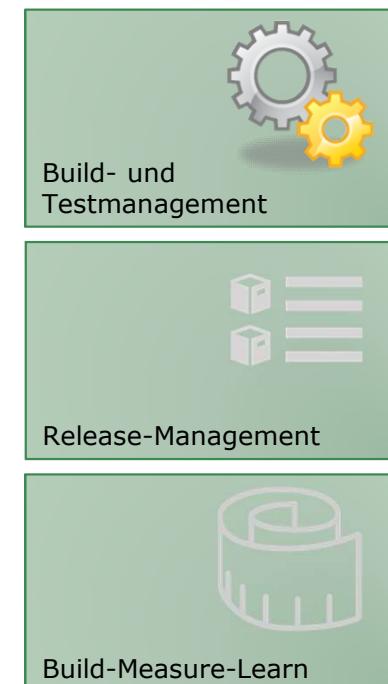
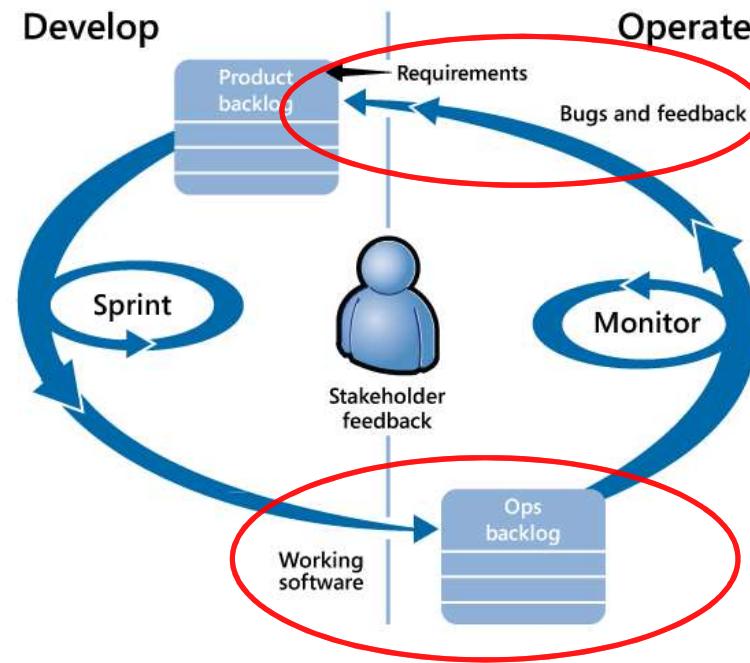
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Practice – Demo



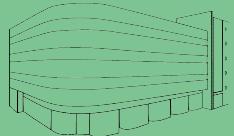
**Unnötigen Ballast entfernen | Verkürzung der Zyklen  
Erhöhung Transparenz**



**Kontinuierliches Feedback | Kontinuierliche Qualität  
Kontinuierliche Bereitstellung**



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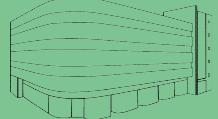
# DevOps & IoT



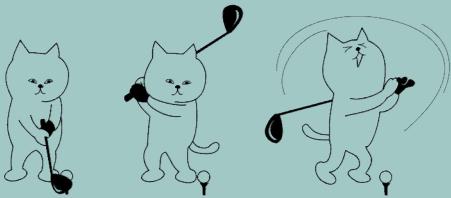
- HW nach Möglichkeit wiederverwendbar
- Puffer in der HW
- Wenige Features vorsehen
- Planung nach Business values
- Frühzeitiges Einbinden in Entwicklung



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PRACTICE – DEMO

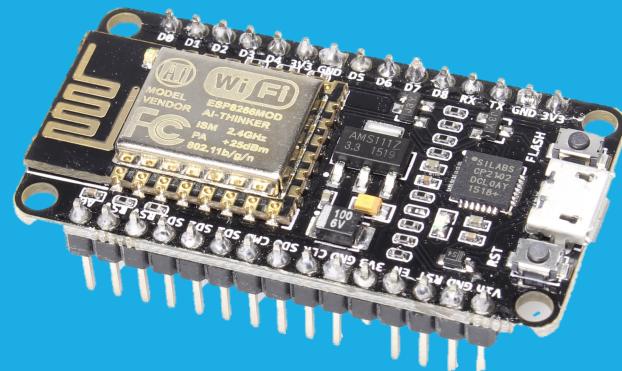
- Tool-Chain
- Provisioning / Bootstrap
- Device-Management
- Feature-Focused

# Device



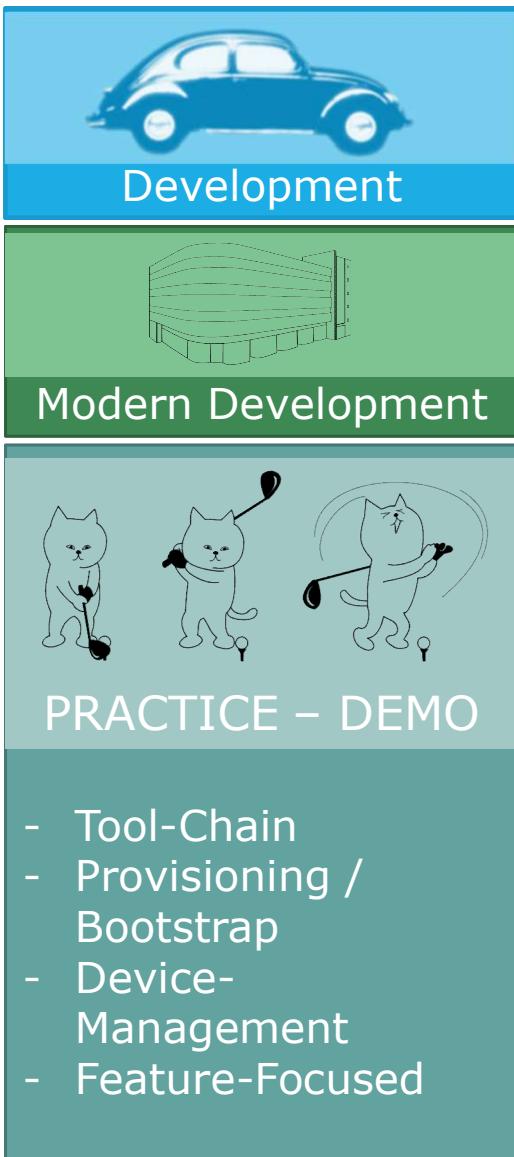
ESPRESSIF

ESP8266-12

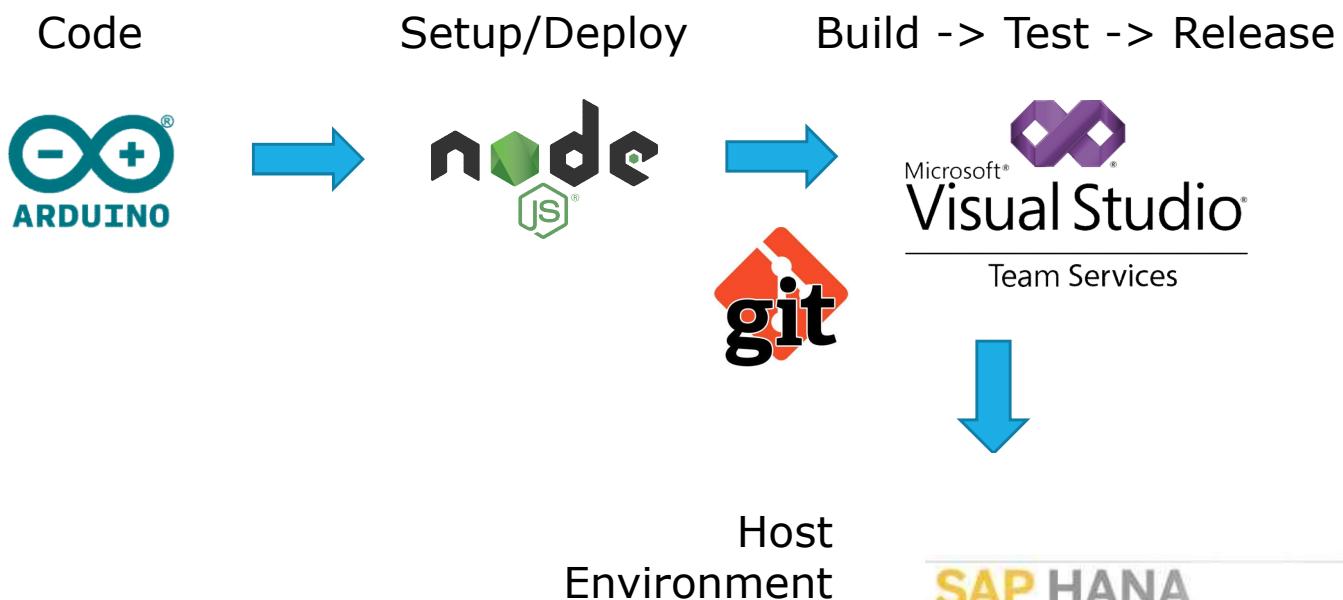


## Features:

- WiFi
- 8Mbit Flash-Memory
- 32Bit MCU
- Low Power Management
- Rx/Tx
- Analog Input
- Digital In/Out
- I2C
- ...

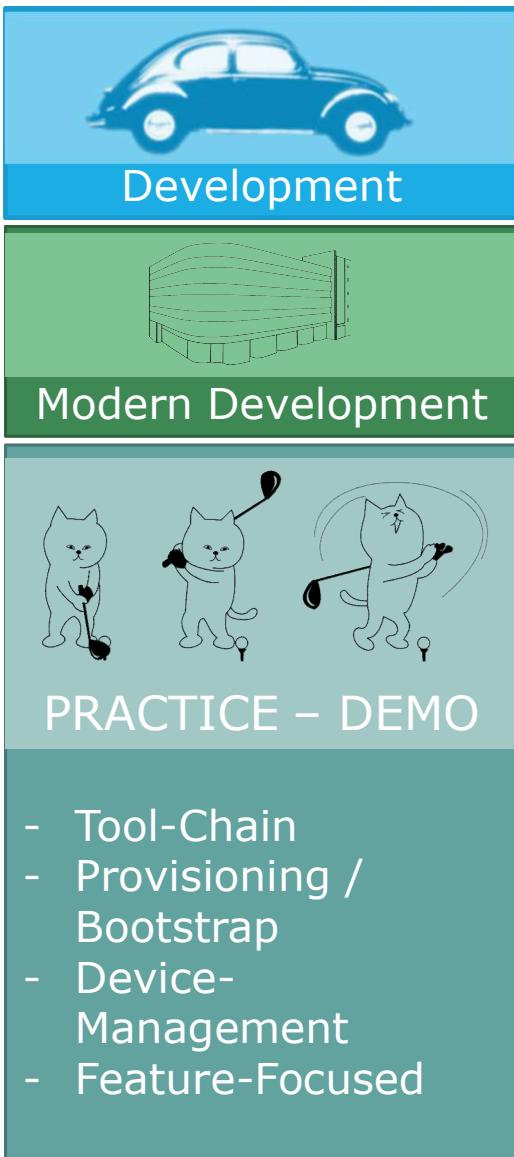


# Dev-SetUp

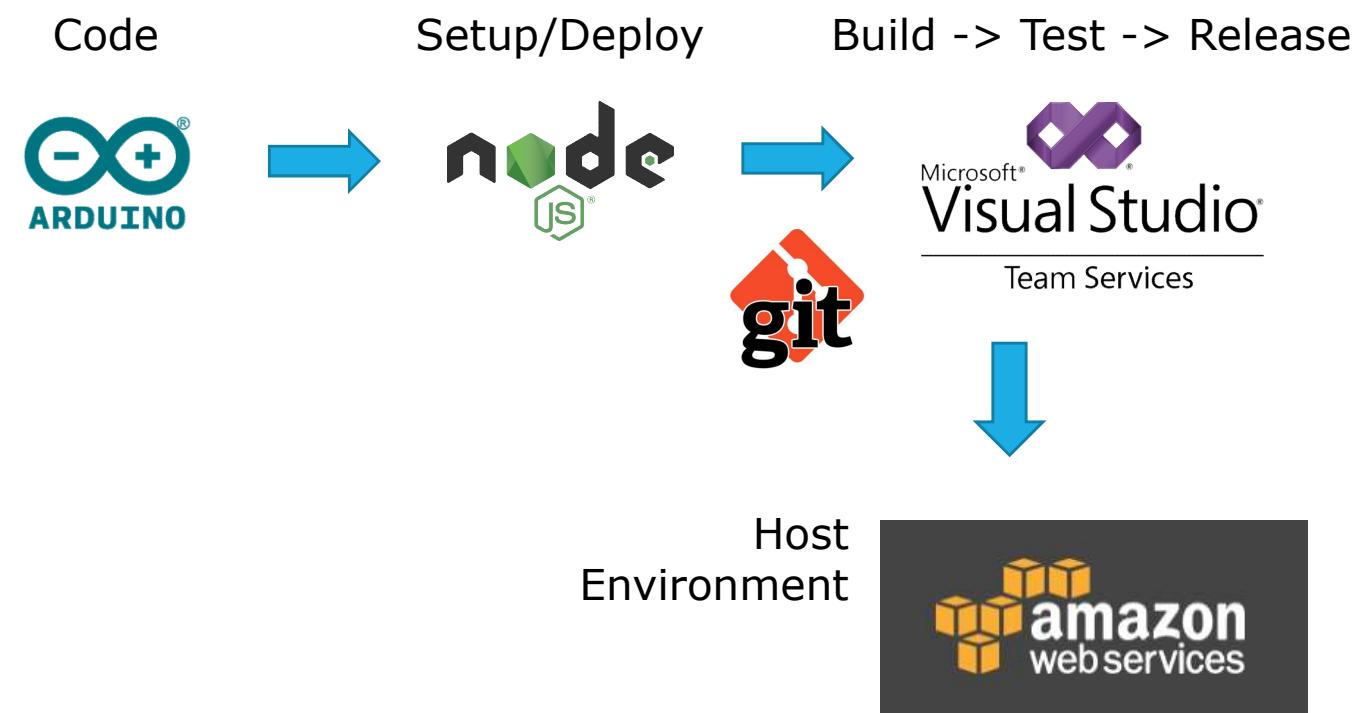


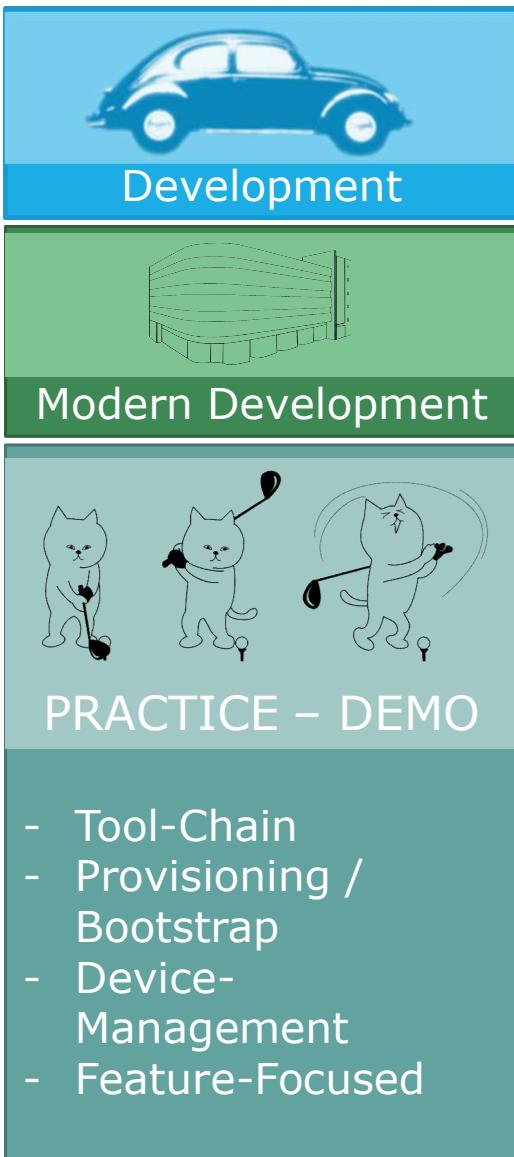
Team Services

**SAP HANA**  
CLOUD INTEGRATION

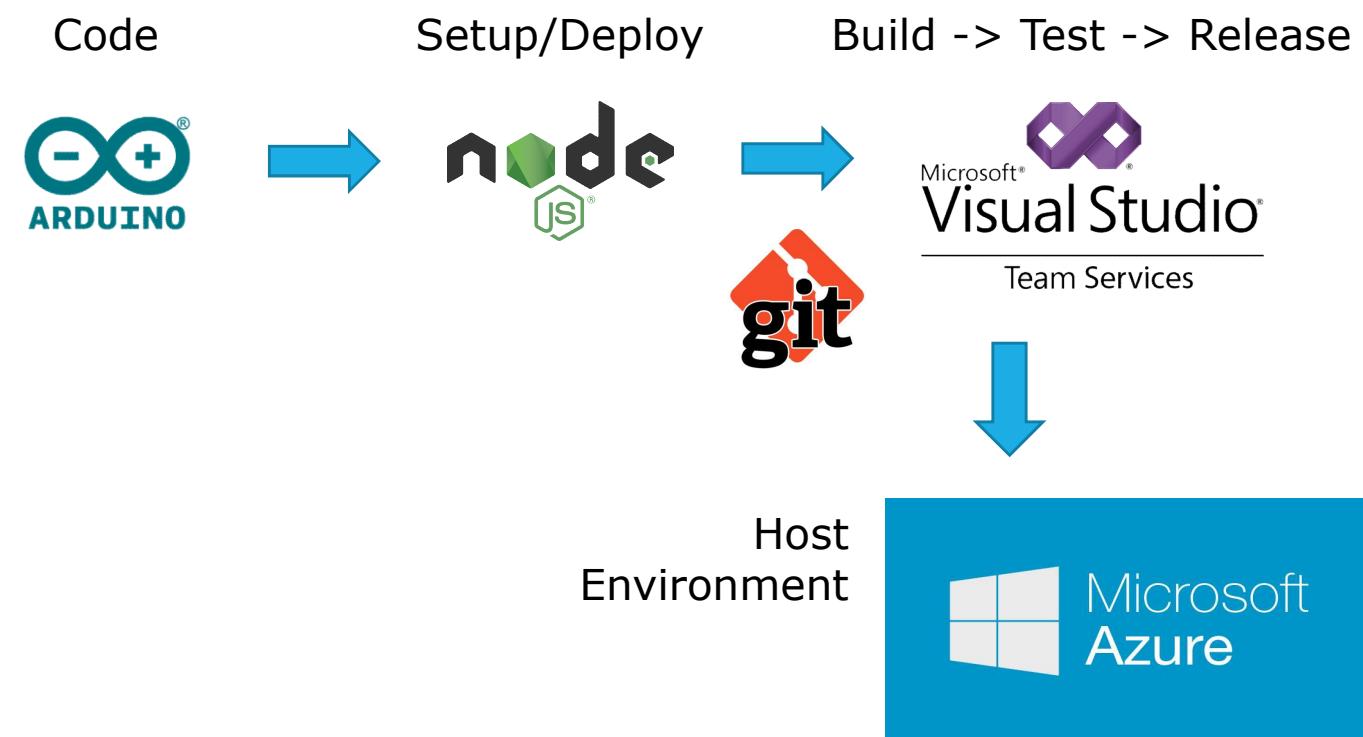


# Dev-SetUp



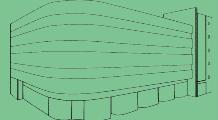


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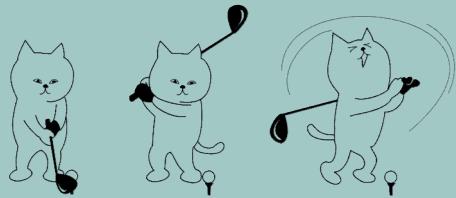




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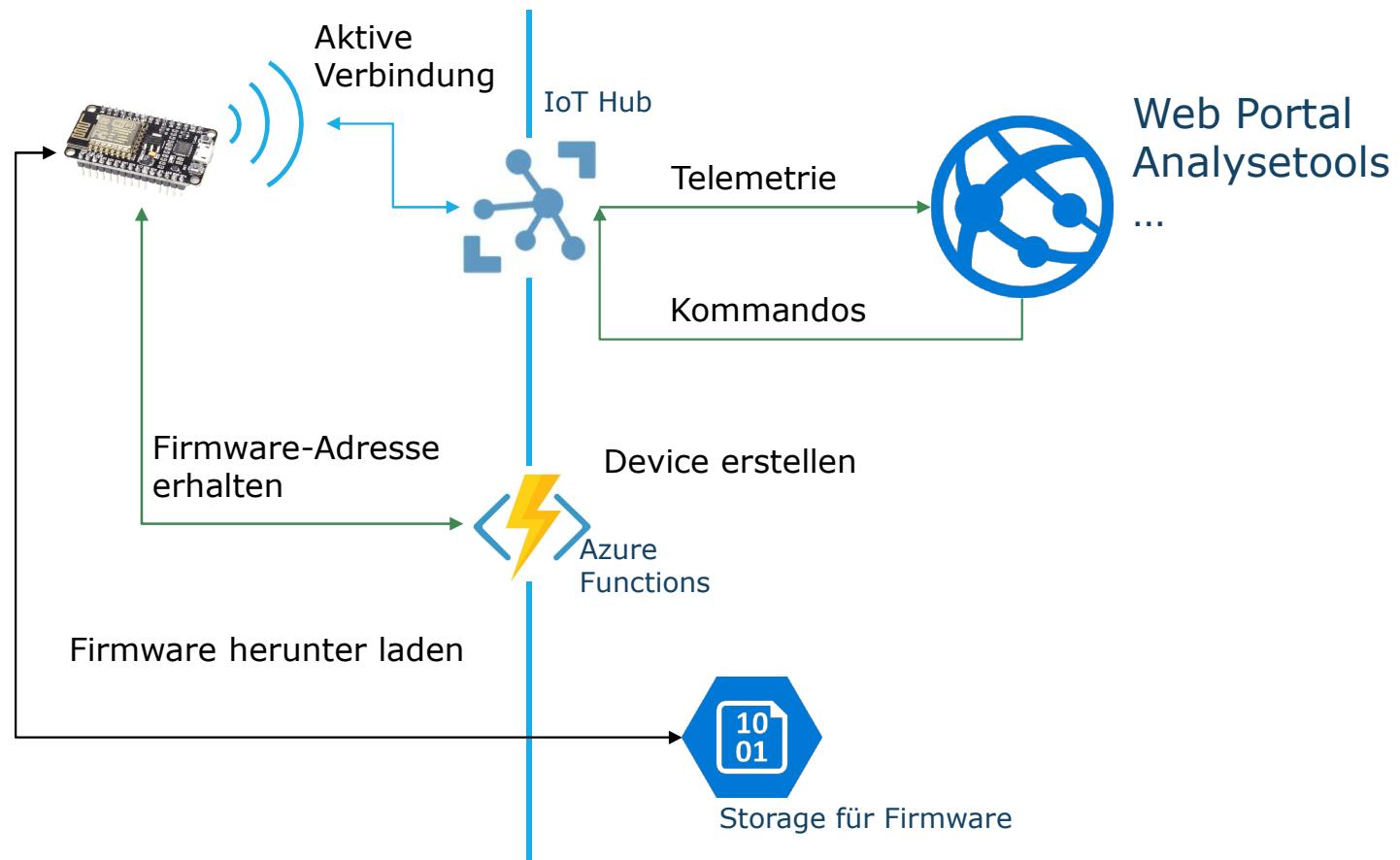
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PRACTICE – DEMO

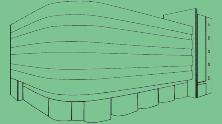
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# Architektur

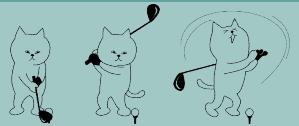




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Practice – Demo

*Danke!*

Twitter: @toto\_san1

Bilderquelle: www.pixabay.com