

# Migration Framework

## Work Package 2

# Agenda

## Architecture

- Overview

- Features

## Performance Results

## Outlook

# Architecture

# Overview

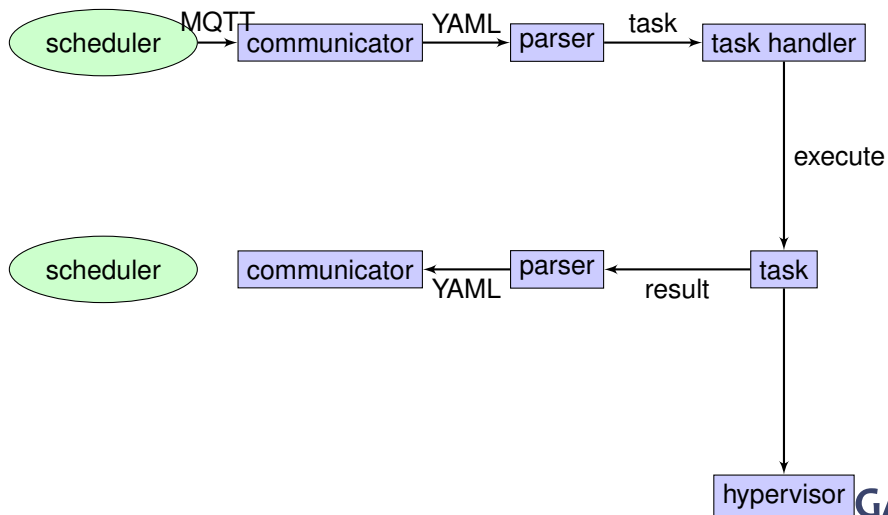
- Hier koennte z. B. ein Schaubild hin, wie man mit dem Migrations-Framwork interagiert.
- Eine zweite Folie koennte die Klassenstruktur etwas erkläreren und deutlich machen, was man benötigt um das Framwork in existierende andere Projekte zu integrieren

## YAML-Messages

```
---  
task: migrate start  
vm-name: anthe1  
destination: pandora2  
parameter:  
  live-migration: false  
...
```

```
---  
result: migrate done  
list:  
  - vm-name: anthe1  
    status: success  
...
```

## Procedure



## Classes

- Task\_handler is the main loop which gets messages from Communicator, calls parser and launches Tasks in Threads.
- Parser translates YAML messages to Task/Subtask objects and Result objects back to YAML.
- Communicator and Hypervisor are interfaces
  - Implementations: MQTT\_communicator and Libvirt\_hypervisor
  - By adding other implementations the framework can be expanded.
  - Integration in other projects is also possible.
  - e.g. using the Communicator interface to call migration
- Tasks can contain more than one subtask (e.g. "start 5 VMs")
  - each subtask is executed in a separate thread

## Features

### Done:

- All parts are ready (MQTT\_communicator, parser, Task\_handler, Task, Libvirt\_hypervisor)
- Task execution and communication are asynchronous.
- Start, stop and migrate tasks are currently available.

### Missing:

- No details about errors are sent back.
- No possibility to ask status of migration framework
- No PCI attach/detach
- Other pre/post hooks (e.g. reduce memory)

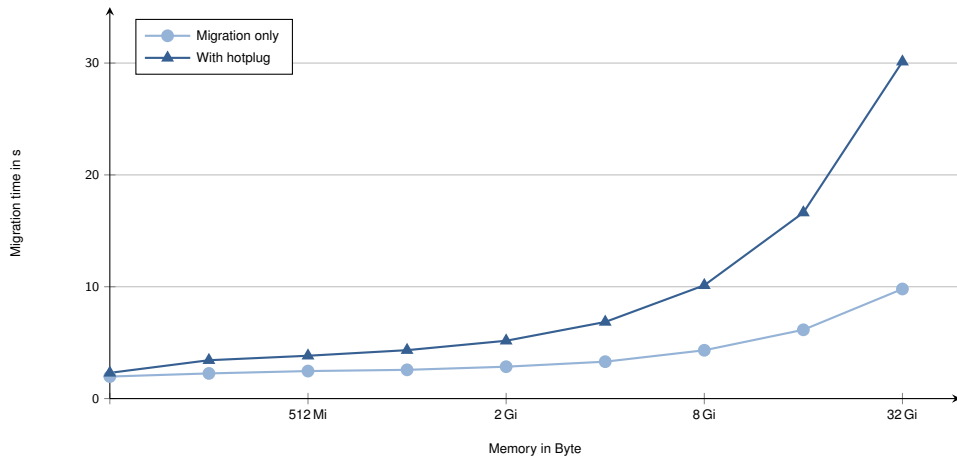


# Performance Results

## Performance Results

- Was kann man deiner Meinung nach alles Messen?
- Wichtig sind vergleichbare Ergebnisse. So solltest du dich z. B. für eine OS, Kernel, Treiber, etc. Konfiguration entscheiden.
- Auf der nächsten Folie habe ich dir mal ein Beispiel angehängt, wie man Graphen mit tikz erzeugen kann.

# Migration Time



# Outlook

# Outlook

- Basics are working
- PCI attach/detach almost done
- Currently working on verbose error reporting

Thank you for your kind attention!

**Simon Pickartz** – [spickartz@eonerc.rwth-aachen.de](mailto:spickartz@eonerc.rwth-aachen.de)

Institute for Automation of Complex Power Systems  
E.ON Energy Research Center, RWTH Aachen University  
Mathieustraße 10  
52074 Aachen

[www.eonerc.rwth-aachen.de](http://www.eonerc.rwth-aachen.de)

## Example slides

## Title of the frame that may also go into the second line

- Itemize list
- Itemize list
  - Second layer
    - Third layer
- Itemize List
- Itemize List
  - Second layer



## Title of a frame having paragraphs

- Lorem ipsum dolor sit amet, consectetur adipisicing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.
- Lorem ipsum dolor sit amet, consectetur adipisicing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.
- Lorem ipsum dolor sit amet, consectetur adipisicing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.

## Frame with boxes

### Block 1

Content of the first block

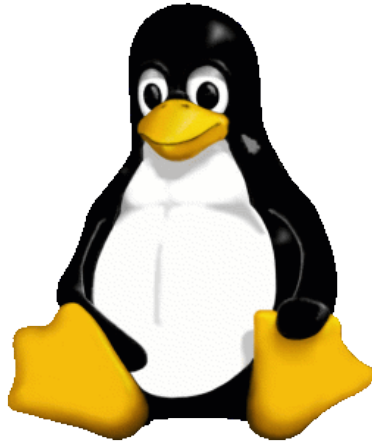
### Another block

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.

## More Examples

## How to set columns

- Item 1
- Item 2
- Item 3
- Lorem ipsum dolor sit amet, consectetur adipisicing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.



## How to set columns (2)

Lorem ipsum dolor sit amet, consectetur adipisicing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.

- cat
  - dog
  - mouse
  - elephant
- Lorem ipsum dolor sit amet, consectetur adipisicing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.
  - Lorem ipsum dolor sit amet, consectetur adipisicing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.

Lorem ipsum dolor sit amet, consectetur adipisicing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.

This frame does not contain a (dedicated) frame title.

## Examples with uncovering

## Piecewise uncovering using pause

Paragraphs and items can be uncovered easily with `\pause`.



## Piecewise uncovering using pause

Paragraphs and items can be uncovered easily with `\pause`.

- Lorem ipsum dolor sit amet, consectetur adipisicing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.

## Piecewise uncovering using pause

Paragraphs and items can be uncovered easily with `\pause`.

- Lorem ipsum dolor sit amet, consectetur adipisicing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.
- Lorem ipsum dolor sit amet, consectetur adipisicing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.

## Piecewise uncovering using pause

Paragraphs and items can be uncovered easily with `\pause`.

- Lorem ipsum dolor sit amet, consectetur adipisicing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.
- Lorem ipsum dolor sit amet, consectetur adipisicing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.
- Lorem ipsum dolor sit amet, consectetur adipisicing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.

## Piecewise uncovering using pause

Paragraphs and items can be uncovered easily with `\pause`.

- Lorem ipsum dolor sit amet, consectetur adipisicing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.
- Lorem ipsum dolor sit amet, consectetur adipisicing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.
- Lorem ipsum dolor sit amet, consectetur adipisicing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.
- Lorem ipsum dolor sit amet, consectetur adipisicing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.

## Fine grained control

- First line

## Fine grained control

- First line
- Second line (appears after first line, disappears again)

## Fine grained control

- First line
- Third line (appears before first one)

## Fine grained control

- First line
- Third line (appears before firth one)
- Fourth line



## Fine grained control

- First line
- Fourth line
- Fifth line

## Fine grained control

- First line
- Fourth line
- Fifth line

Standard behavior with `\onslide` is to keep its place, even if not displayed.

## Fine grained control

- First line
- Fourth line
- Fifth line

Standard behavior with `\onslide` is to keep its place, even if not displayed.  
With `\only`, the element does not occupy place. This may lead to shifting other elements.

# Quellcode

## Example-Code: Hallo Welt!

```
#include <stdio.h>

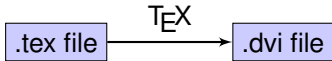
void main (void) {
    printf("Hallo_Welt!\n");
}
```

## TikZ example

## animated graphics

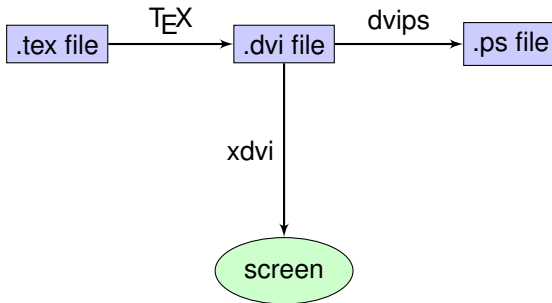
.tex file

## animated graphics

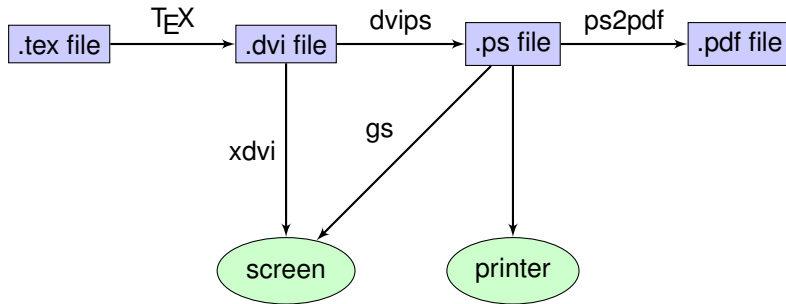




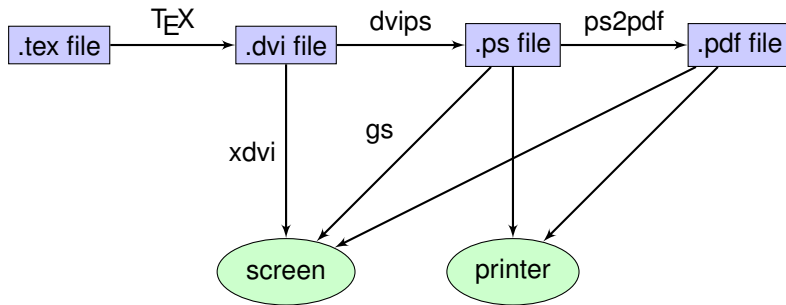
## animated graphics



## animated graphics



## animated graphics



## animated graphics

