

# Extended Task Resubmission

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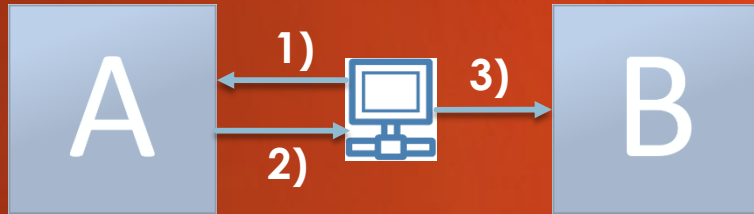
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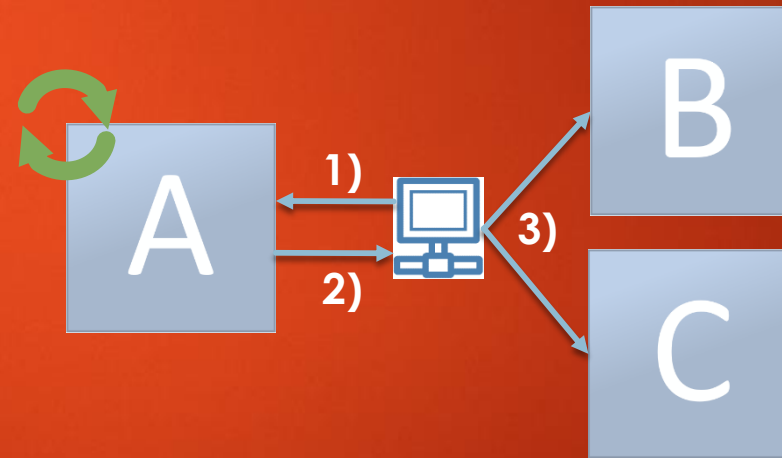
# Algorithm

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► Baseline:



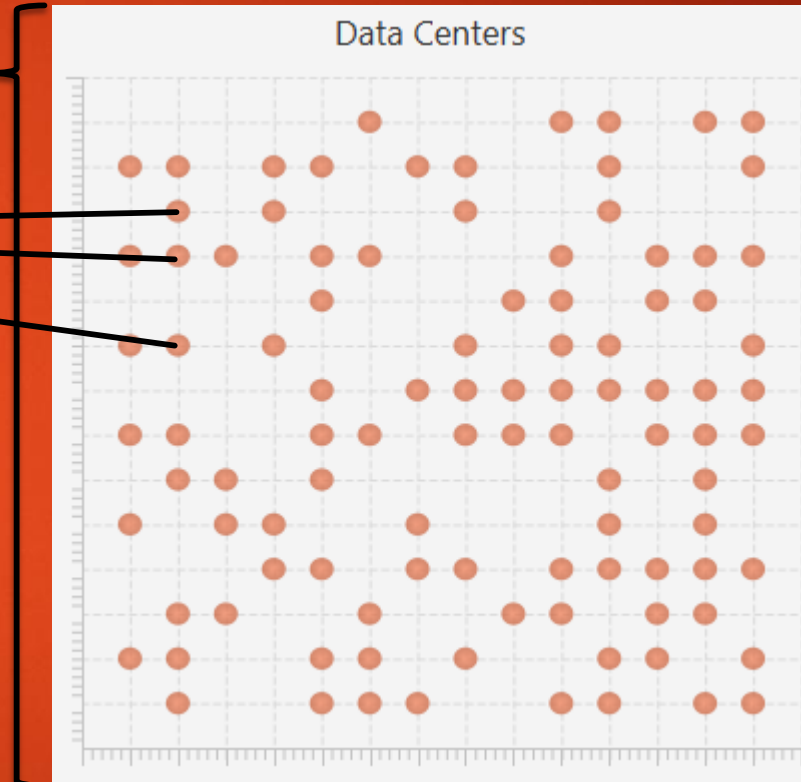
► Extension:



# Architecture

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- ▶ Grid
  - ▶ Fixed Size
- ▶ Datacenter (DC)
  - ▶ Randomly Distributed
- ▶ Physical Machine (PM)
  - ▶ Fixed Number / DC
  - ▶ CPU, Memory, Bandwidth
- ▶ Virtual Machine (VM)
  - ▶ Shares Memory of a PM
  - ▶ 1 Job at a Time
- ▶ Job
  - ▶ Gaussian Distributed Execution Time



# Implementation

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- ▶ Job
  - ▶ Single Thread Using *Thread.sleep()* as „Operating Time“
  - ▶ Probability of Failing Determined by Job & VM
- ▶ Migrations
  - ▶ Minimize Latency
    - ▶ Checking for „Free“ PM in Same DC
    - ▶ Choosing Next DC by Comparing Bandwidth
- ▶ Increasing Failure Rate
  - ▶ After Every Job to a Given Limit
  - ▶ Reset to „0“ After Reboot

# Framework

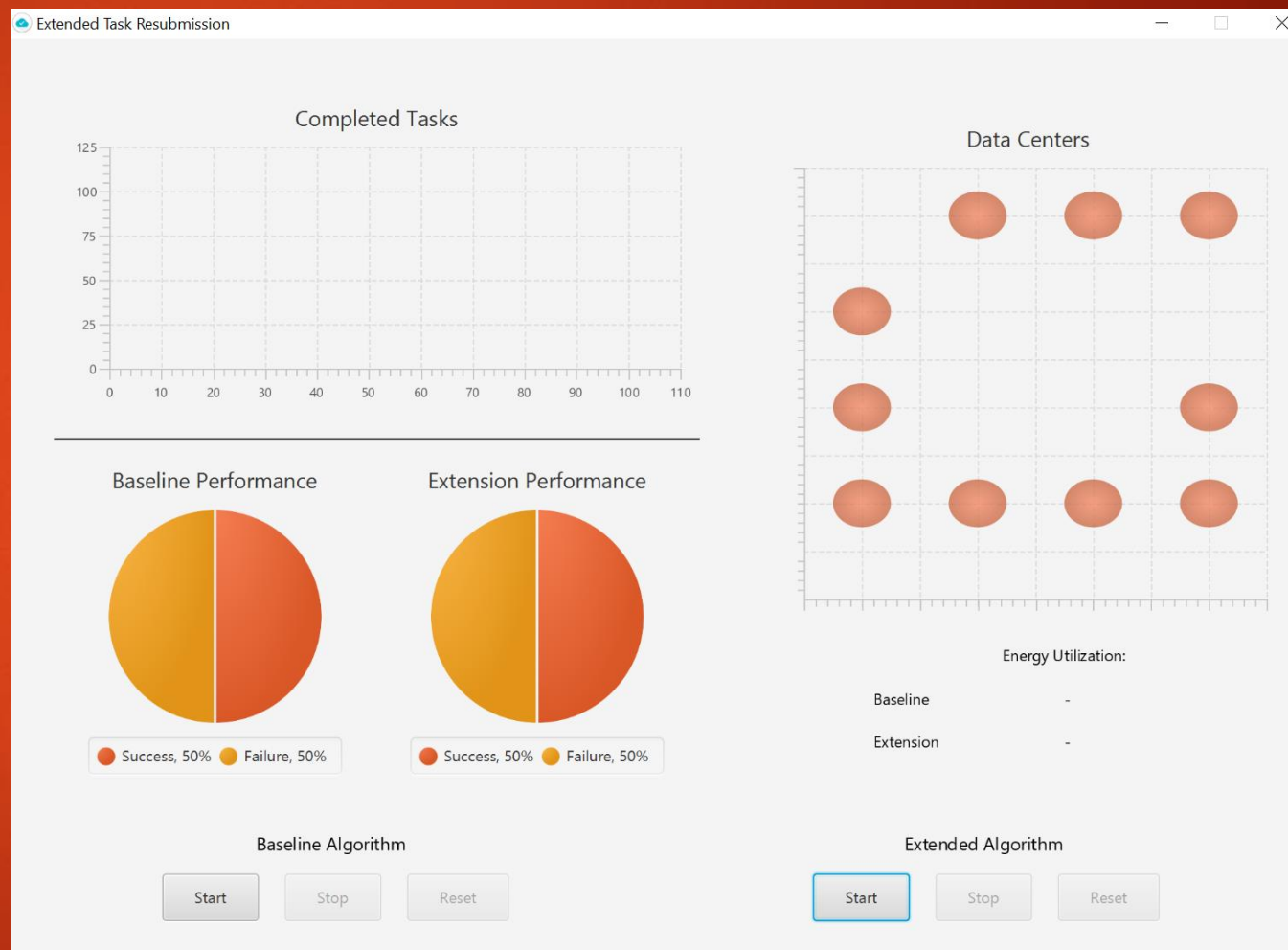
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- ▶ Implementation

- ▶ Java 1.8

- ▶ Visualization

- ▶ JavaFX 8



- ▶ Maximize Number of Completed Jobs
  - ▶ The Success-Rate of Distributed Jobs Must be Higher Than 80%
- ▶ Minimize Latency
  - ▶ A Job is Always Transferred to the Next Best PM
  - ▶ The Average Latency Must be Lower Than 500 ms
- ▶ Keep Energy Utilization in Suitable Area
  - ▶ Energy Consumption of the Extended Implementation Must Not Be Twice as High Compared to the Baseline

# Live Demo!

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