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Release PLEASE!

Bachelor Thesis

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Outline

- Motivation
- Thesis Goal
- Related Work
- Requirements Analysis
- Use Case
- Data Scheme
- Prototype
- Evaluation
- Conclusion

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Motivation

- Research of Personal Learning Environments to enhance digital learning led to ROLE SDK [GVD*11]
- Research of informal learning led to the Layers APP Store [KKN*15] for distributing learning related apps and the Community Application Editor [LND*16] to support communities of practice with low technical knowledge to develop their own applications
- LAPPS is neither connected to ROLE SDK nor to CAE

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Thesis Goal

- Develop agile release cycle for learning apps, ease their distribution and enable discovery of learning settings
- Integrate LAPPS with ROLE SDK and CAE to allow learners with low technical knowledge to find and share apps for usage in their PLE or apps they developed themselves

Personal Learning Environment [OILi01]

- Learner centric in contrast to course centric
- Requires self regulated learning, the learner is responsible for his own learning process [KrKI12]
- Monitors progress of learning for evaluation
- Processes & presents data and information from multiple sources
- Enables collaboration with other learners

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App Store [Behr12]

- Discover and search for most relevant app
- Reliable, automatic installation and update
- Rate & comment
- Earn money per installation or with app content

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Comparison

	open source	PLE centric	widget based	app search	automatic deployment updating	app platform (Mobile, Desktop)	deployment feature	rating+commenting	recommendations
ROLE Widget Store [Dahr12]	✓	✓	✓	category, functionality	✓	✓	M+D	widgets, bundles	✓	templates (pedagogical models)
L2P App Store	✓			category, name	✓	✓	M+D	widgets	✓	rating, downloads
Moodle plugin directory				category, name, description			M+D	download	✓	rating, downloads, usage, preselection
LAPPS	✓			title, tags, author			M+D	none	✓	rating, recency
Steam				genre, name, description, tag, single/multiplayer, …	✓		M+D	download	✓	following, marketing
Playstore				category, name, description	✓	✓	M	download	✓	rating, downloads, marketing, …
npm Registry	(✓)			name	✓	✓	D	download		
Cytoscape App Store [LMD*13]				category, name, description, tag, author	✓	✓	D	download		downloads
PLEASE	✓	✓	✓	name, description, author	✓	✓	M+D	widgets, Web service, download	✓	rating

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Functional Requirements

- Store apps and app composites (bundles)
- App search and discovery
- User feedback and rating
- Auto deployment and update
- Integrate ROLE widgets and spaces
- Integrate CAE and applications developed with it

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Nonfunctional Requirements

- Open source
- App store and apps running on desktop and mobile
- High yield of user feedback for development
- Security and reliability

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Use Case

- User needs app
  - Visit website
  - Type search terms
  - Select app and read description
  - Click on “deploy to ROLE space”
- Upload app
  - Visit website
  - Click on “New”
  - Fill in description
  - Add version with build and deploy script
  - Click on “Create”
  - Click on “Builds”
  - Click on a version to start a build

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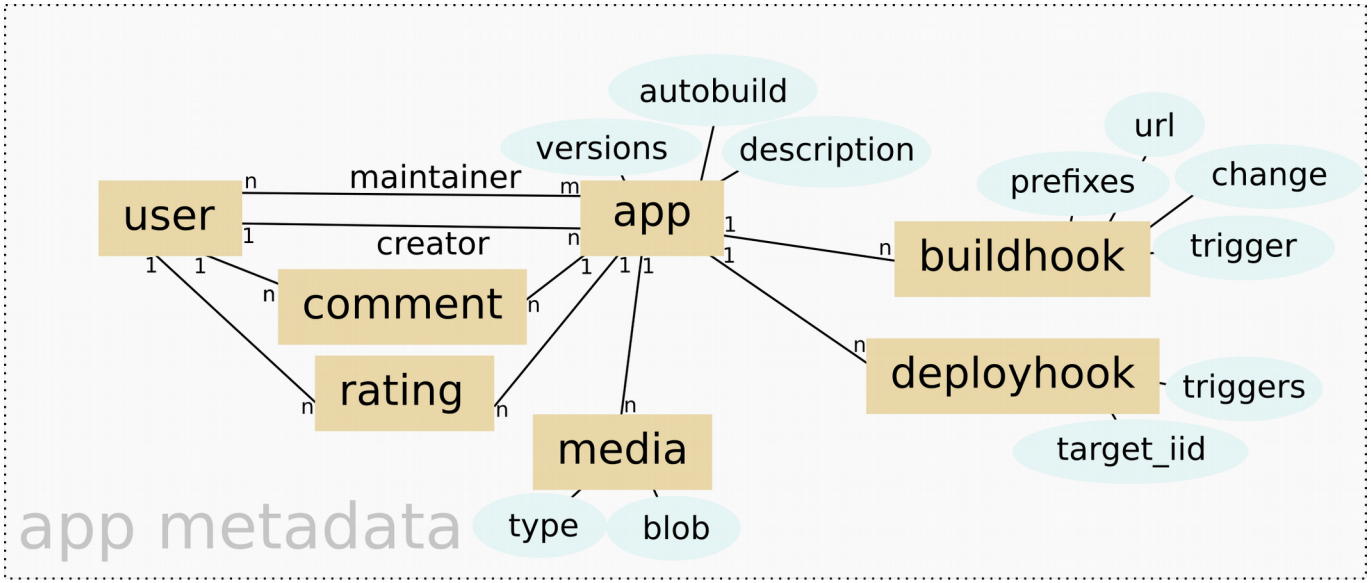
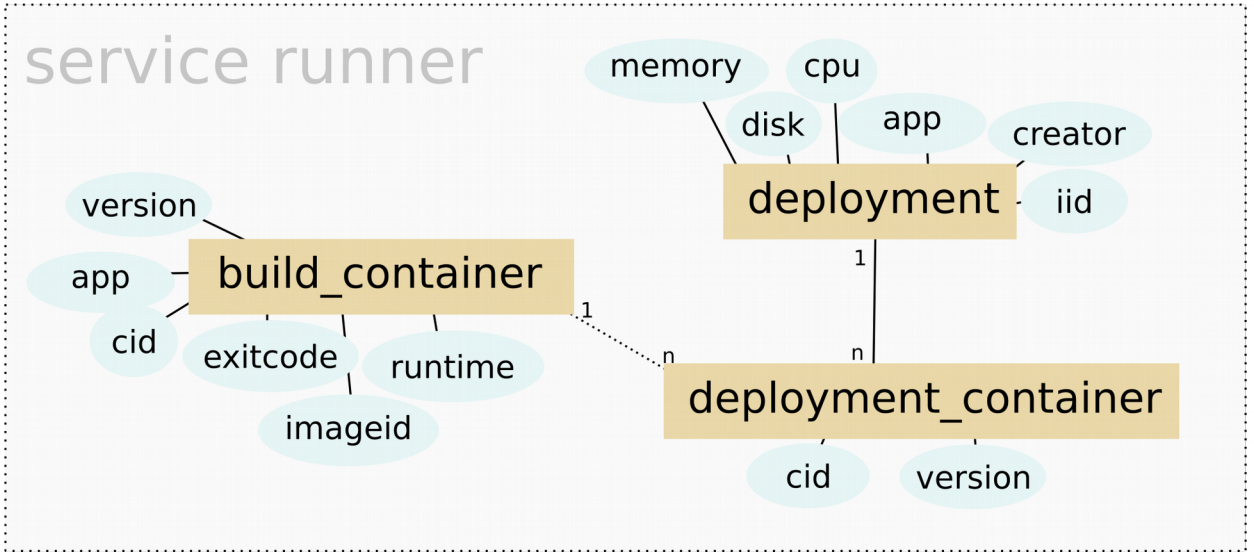
Data Scheme





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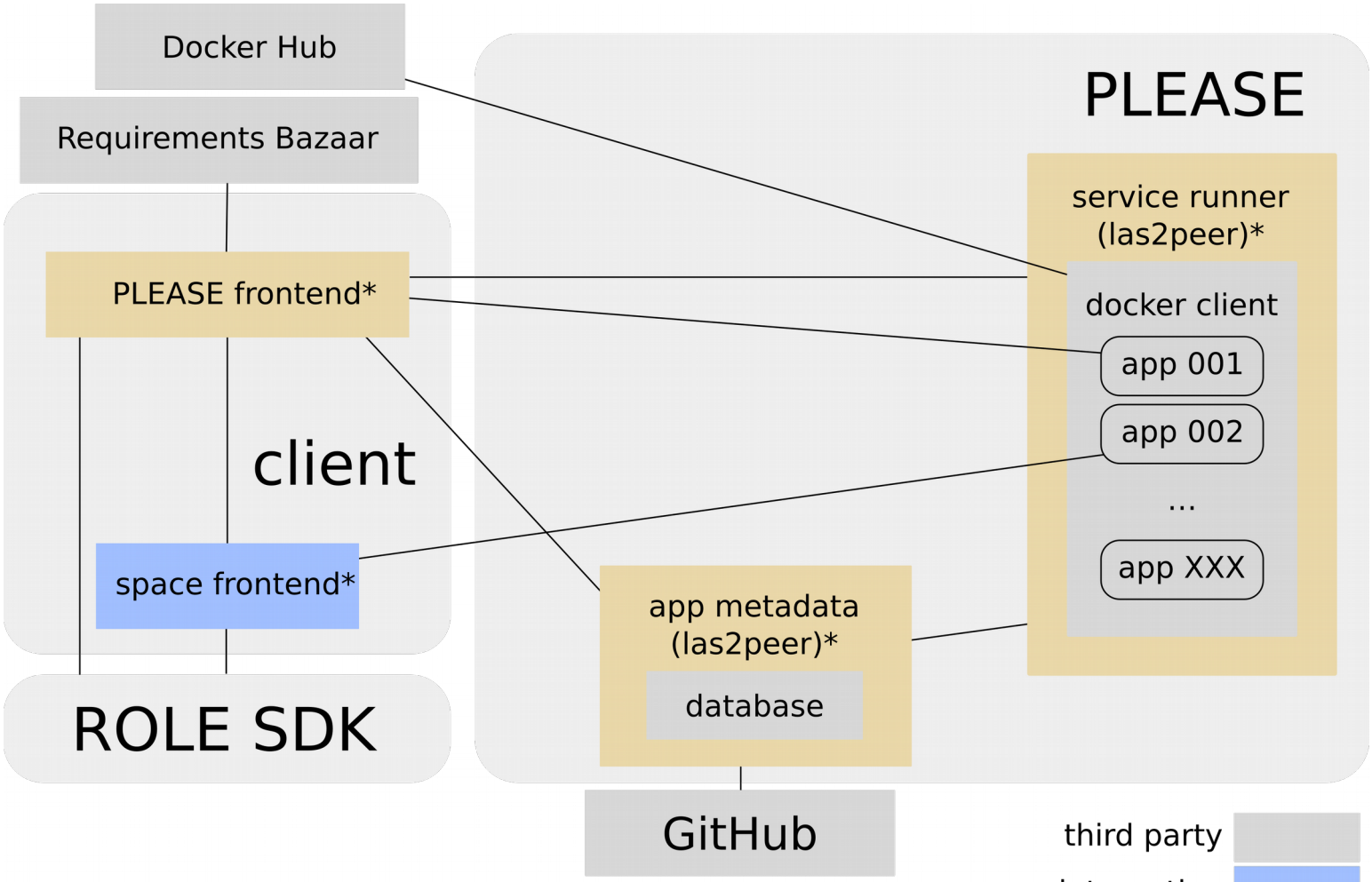
Prototype



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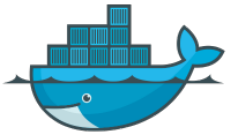
Used Technology

- **Docker** – application containerization software ecosystem



- **LAS2Peer** [Jans13] – Java-based server framework for developing and deploying services in a distributed Peer-to-Peer environment

- **Polymer** – JavaScript library that helps to create custom HTML elements and use them to build apps

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User Evaluation

- Goal
  - Evaluation of usability and usefulness of app discovery and deployment with PLEASE
- Methodology
  - 2 Tasks: Setup Anatomy2.0 ROLE space
    - Solve task without PLEASE
    - Solve task with PLEASE
  - Feedback was collected with the help of surveys
- Participants
  - 5 participants
  - All students
  - 4 of them developed a Web service before

Results

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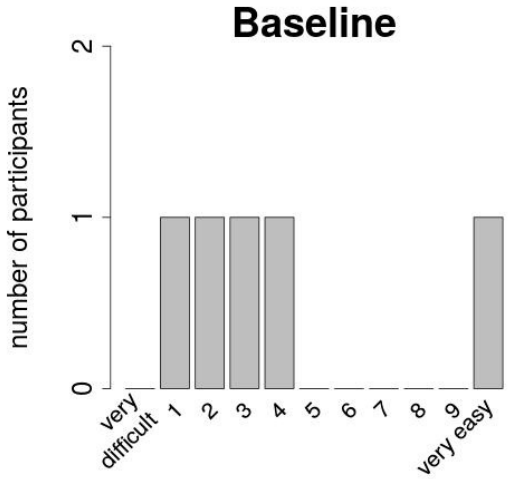
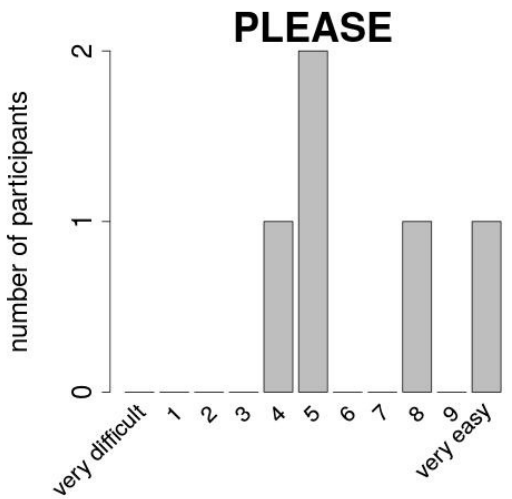
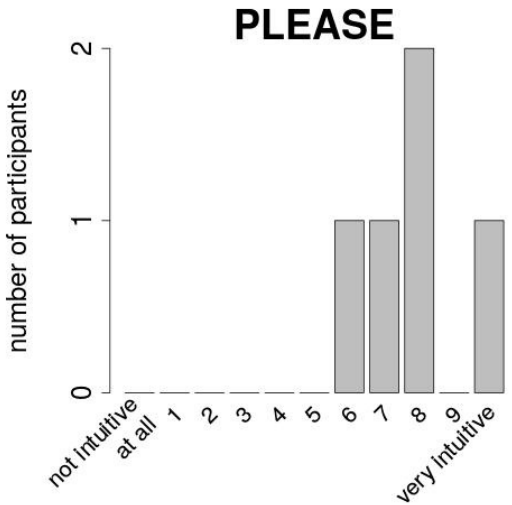
- Anatomy2.0 setup





- App search



Results

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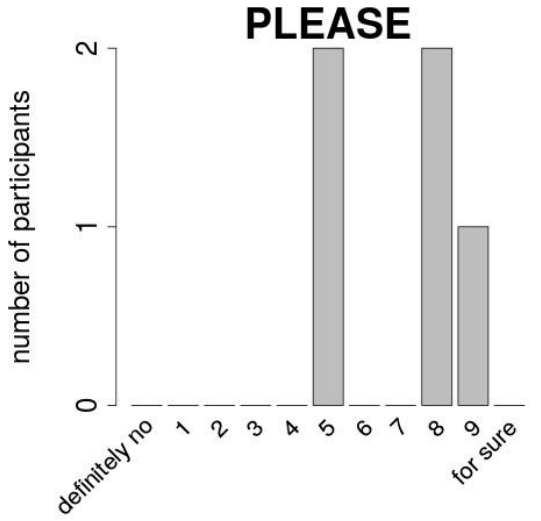
- Would you use PLEASE to search for and to setup collaborative learning apps?



- What advantages do you see in using PLEASE to continuously test, build and deploy your service?
  - "Much simpler workflow and flexibility."
  - "Saving time"
  - "My users don't have to set up my stuff"

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Conclusion

- PLEASE can simplify app discovery and deployment
- The evaluation suggests that users are accepting the provided way of developing and deploying apps
- CAE still needs integration
- The prototype misses many features, the missing update/rollback and hook frontend implementation hinders the use for continuous integration

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