The Human-Provided Application Framework

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Motivation

- Crowdsourcing systems have been extensively used to solve problems in various domains.
- If we could have a framework where novice users could participate in the crowdsourcing market as requester, we could trigger a tremendous transaction traffic in the market.
- Human-provided application (HPA) allows an execution of crowdsourced services in a similar manner as executing software applications.
- HPA looks like a normal application which a novice user could download and execute. However, in the backend, this HPA crowdsorce some of its processes to the crowdsourcing market seemlessly.

Example:

Personal Assistance Application
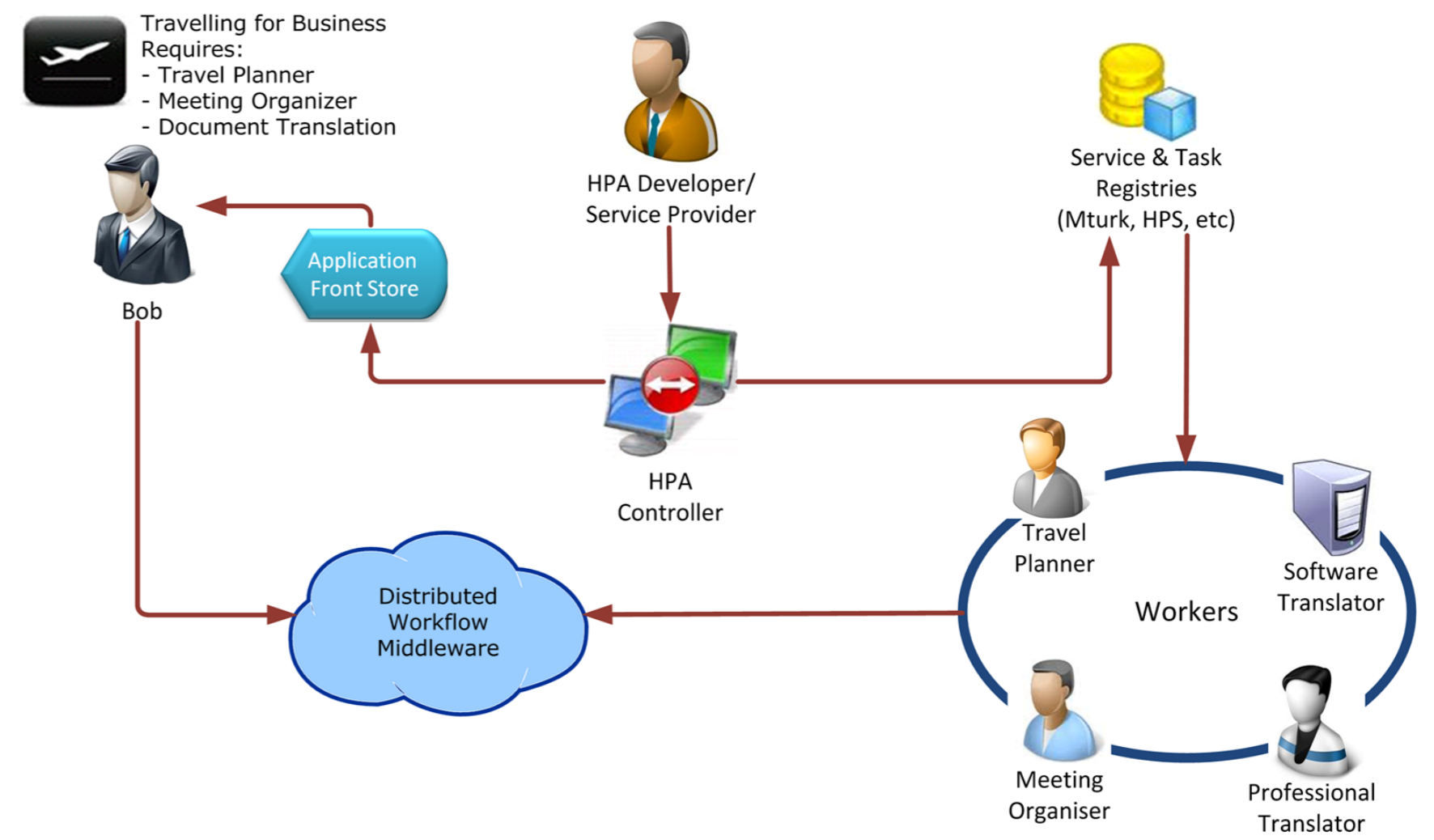
HPA Lifecycle
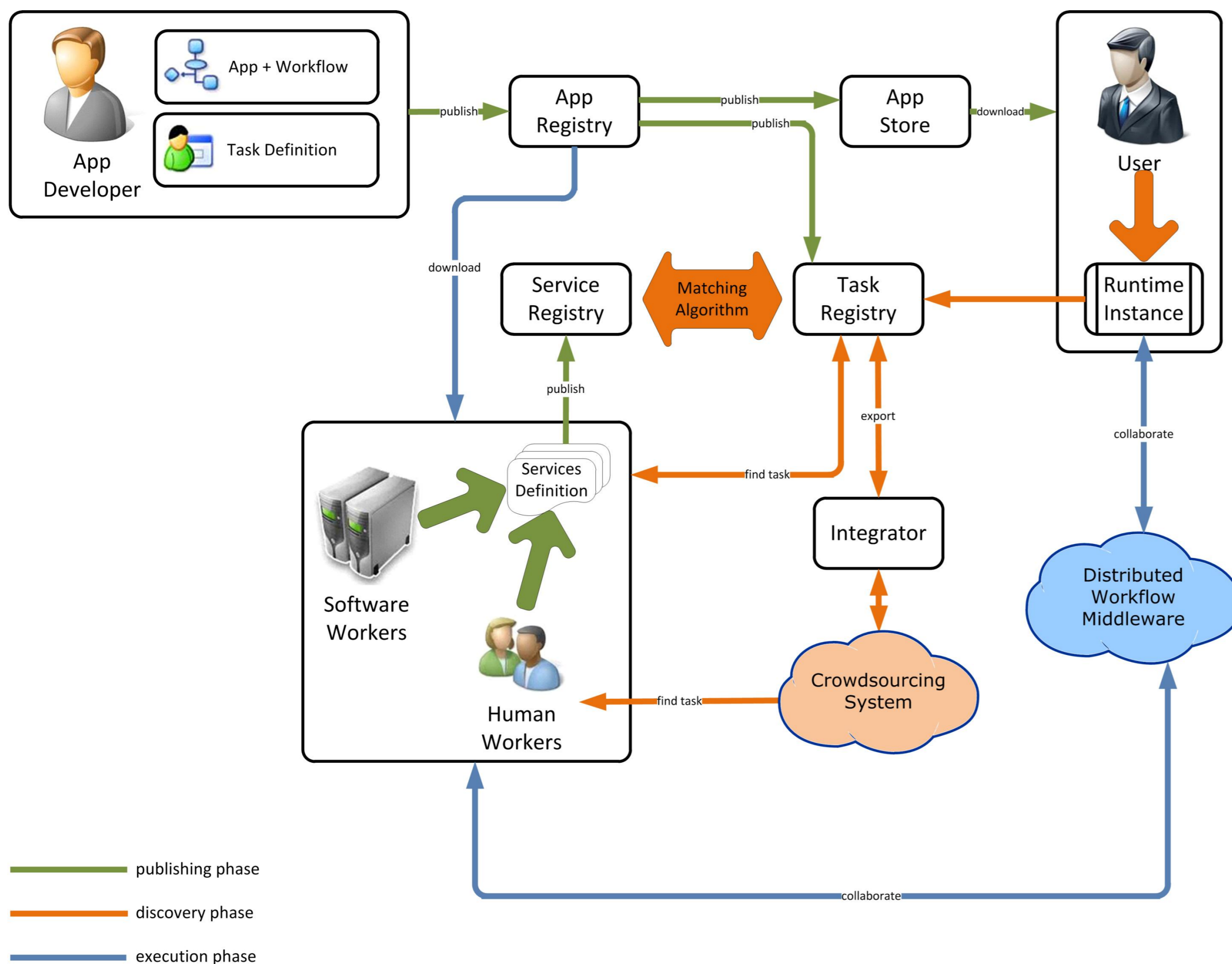
Research Problems

The purpose of this study is twofold:

- First, this study will develop a conceptual application architecture and framework with crowdsourced services as its main application components.
- Second, this study will develop a distributed middleware to enable publishing, discovery, and execution of human-provided application.

Some research challenges:

- How to model the human-provided application workflow and interaction between end-users, service providers, and workers.
- How to develop an efficient application front store which help end-user finding a suitable application with appropriate contract of service for a specific requirement.
- How to develop task and service discovery and notification mechanism so that the workers does not have to browse over the task lists repeatedly in order to find an appropriate task to solve as currently happening in existing crowdsourcing platforms.

Artifacts

- A novel *human-task definition* construct which allows application developer to define human-tasks as input/output of an application, publish the task request to the cloud during runtime, and dynamically bind to the chosen workers.
- A *matching algorithm* which matches tasks requested by application runtime and services defined by workers.
- An *integrator component* which leverages existing crowdsourcing platform where task request from the application could meet the crowdsource workers.
- A *peer-to-peer workflow engine* which allows the execution of distributed workflow application without a centralized workflow server.

Research Contributions

To the *Business-Environment:*

- This research will unleash the potential of millions of common Internet users to participate in the crowdsourcing market place as requesters, hence generating more traffic and transactions in the market place.
- This research will also allow corporations to automatically crowdsource some of the tasks in their business process workflow to the crowdsource market.

To the *Knowledge-Base:*

- This research will produce artifacts such as human-task definition contruct, task-service matching algorithm, crowdsourcing platform integrator and peer-to-peer workflow engine which will be benificial for future research.