# QOS AWARE WEB SERVICE DISTRIBUTION DESIGN

Boxiong Tan

April 1, 2015

Victoria University of Wellington

# BACKGROUND

**Service-oriented computing (SOC)** provides a new paradigm for software engineering.

- Complex functionality can be obtained by combining existing services
- To reuse existing services so that new software applications can be developed in an agile and cost-efficient way

In order to become **competitive** in the market, web service providers are trying to improve the quality of Service (QoS) as well as control the expense.

# PROBLEM

Problem:

1. **Minimize the cost** of service provisioning
2. **Meeting the required levels of quality of Service (QoS)**

1. Minimize the **deployment cost**
2. Minimize the **network latency**

A promising approach to solve this problem is to **allocate services across multiple locations**.

Unfortunately, it is **NP-hard** to find an optimal distribution plan when consider multiple-factors.

Therefore, one needs to find **heuristic techniques** to find near optimal solutions.

# PSO-BASED APPROACH

We propose a **Particle Swarm Optimization (PSO)-based** approach.

Advantages:

1. PSO is more **computationally efficient** (uses less number of function evaluations) than the Genetic Algorithm.
2. Strong capacity of dealing with **large data**.

# PROJECT OBJECTIVES

Our project objectives are:

1. To **model** the Web service distribution problem so that it can be tackled by PSO
2. To **develop** a PSO based approach to solve the Web service distribution problem

# EVALUATION

We run our experiments on existing data set (WS-DREAM) which collected from real world data.

Then, we compare PSO-based algorithm with existing algorithms: GA and NSGA-II:

1. Efficiency
2. Effectiveness

# Questions?