Parrotfish: An Advanced Multi-Objective Serverless Rightsizing Tool

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Rightsizing Serverless Functions

● Serverless pricing model (e.g., AWS Lambda):
  \[ \text{Cost} = \text{Request Cost} + \text{Execution Time (s)} \times \text{Memory (MB)} \times \text{Duration Cost (1/MB.s)} \]

10 ways to reduce your AWS Lambda costs

14 July 2021  Symon  Tags: AWS, serverless  Comments: 0

● Existing approaches:
  ○ Manual sweep
  ○ Automated sweep (e.g., AWS Lambda Power Tuning)
  ○ Black-Box Learning and Optimization

How We Reduced Lambda Functions Costs by Thousands of Dollars

Mohamed Labouardy  Follow
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Modeling Serverless Functions

- Knowing a common underlying behavior, per-function performance models can be fit robustly with few samples (Parametric Regression).

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Parametric Regression is Beneficial

- **1.81x-9.96x** reduction in exploration cost compared to state-of-the-art tools
- **25.74%** reduction in cost of suggested memory, on average

* Sizeless only supports NodeJS functions.
Parrotfish

- Target users: developers, cloud providers, and researchers
- Currently supports AWS Lambda and GCP Functions
  - Modular design to add support for other cloud platforms
- Supports rich objectives, handles multiple inputs, and supports various clouds.