Marcin Copik, Alexandru Calotoiu, Torsten Hoefler

SeBS 2.0: Keeping up with the Clouds

The 3rd Workshop on SErverless Systems, Applications and MEthodologies (SESAME'25)

< EURO/SYS'25 >

SeBS: The Serverless Benchmark Suite

“SeBS: a Serverless Benchmark Suite for Function-as-a-Service Computing”, Middleware 2021

SeBS: The Serverless Benchmark Suite

Cloud-Agnostic

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Representative Benchmarks

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Automatic Experiments

Performance & Cost
Invocation Overhead
Container Eviction

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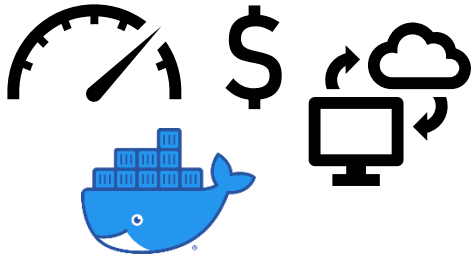
Insights



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SeBS: The Serverless Benchmark Suite

Cloud-Agnostic

Representative Benchmarks

Automatic Experiments

Performance & Cost
Invocation Overhead
Container Eviction

Insights

Adoption & Community

75+ forks
20+ contributors

Google Summer of Code

“SeBS: a Serverless Benchmark Suite for Function-as-a-Service Computing”, Middleware 2021

Serverless has been changing – and so did we!

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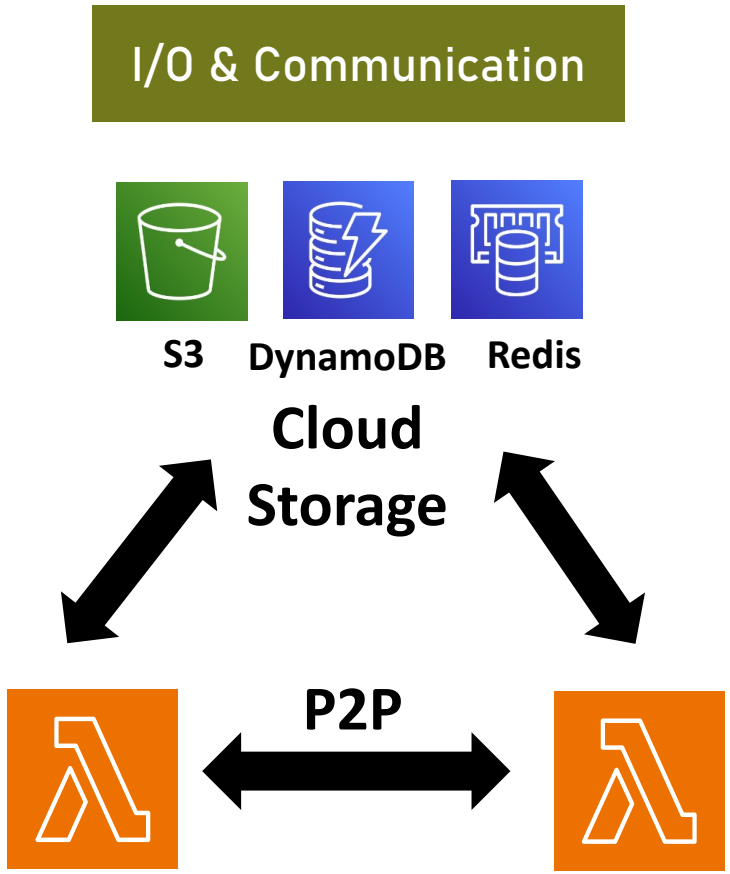
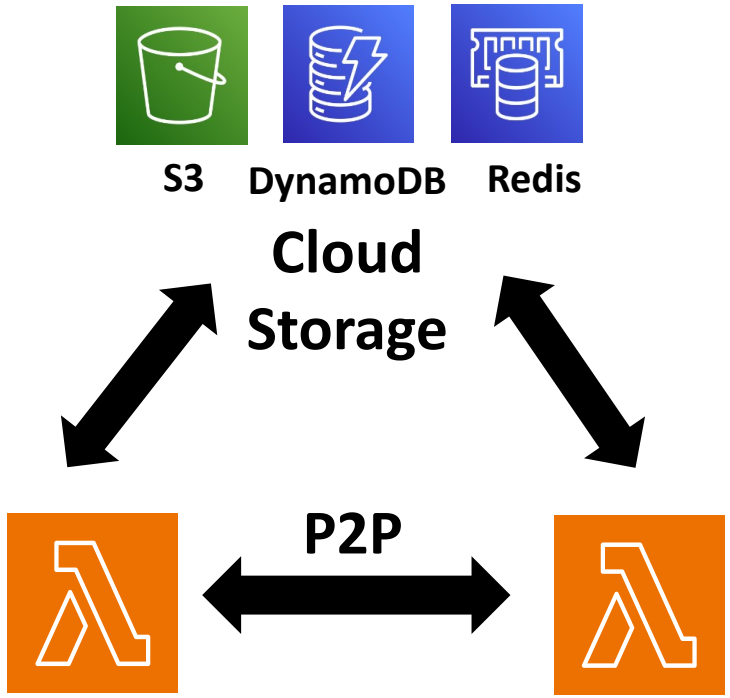


Serverless has been changing – and so did we!

I/O & Communication



New Systems

APACHE OpenWhisk

fission

Serverless has been changing – and so did we!

I/O & Communication

S3 DynamoDB Redis

Cloud Storage

P2P

New Systems

NoSQL Storage

AWS DynamoDB

Azure CosmosDB

Google Cloud Datastore

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I/O & Communication

S3 DynamoDB Redis

Cloud Storage

P2P

New Systems

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fission

New Features

Cloud Queues

New runtimes

Support for aarch64

NoSQL Storage

AWS DynamoDB

Azure CosmosDB

Google Cloud Datastore

SeBS-Flow: Let the Work Flow in the Cloud

“SeBS-Flow: Benchmarking Serverless Cloud Function Workflows”, Schmid et al., EuroSys 2025

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Analysis of 72 research papers: how are serverless workflows evaluated?

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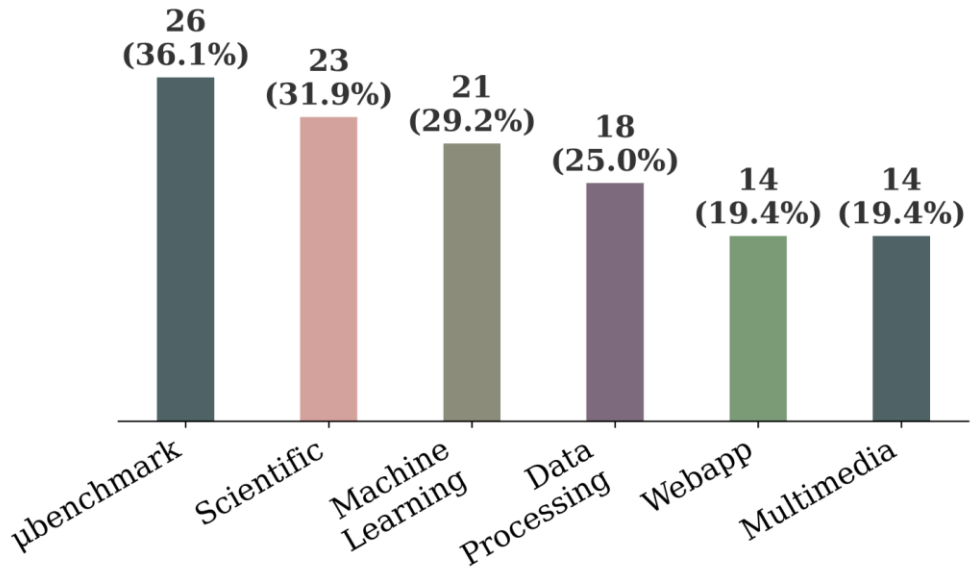

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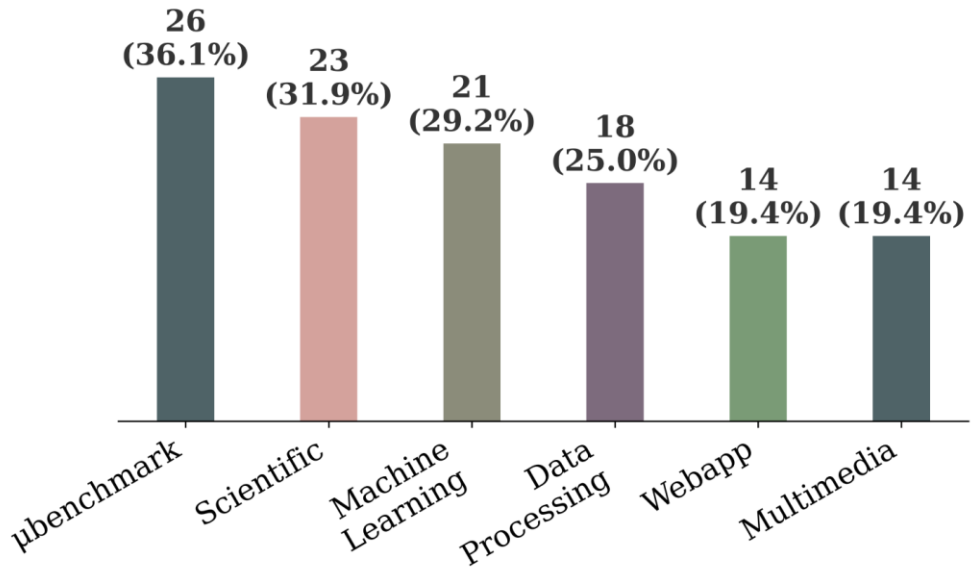

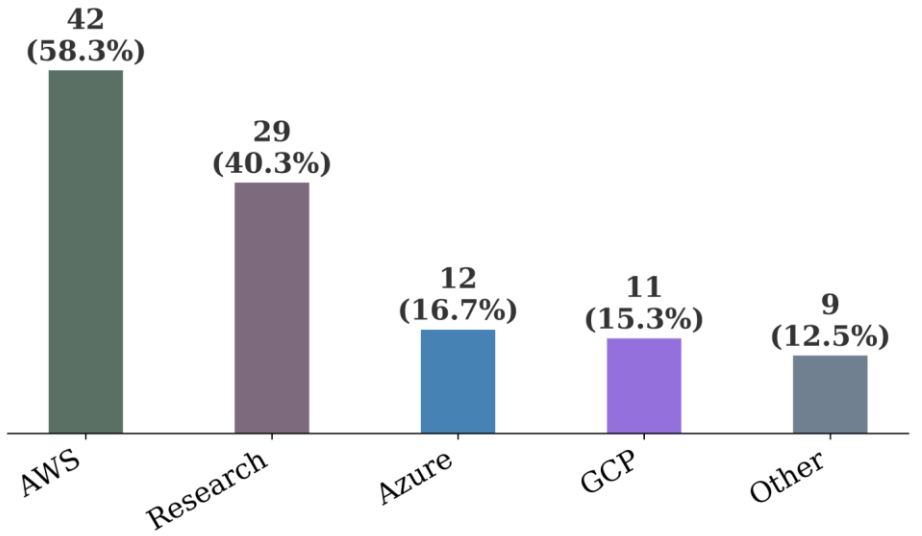

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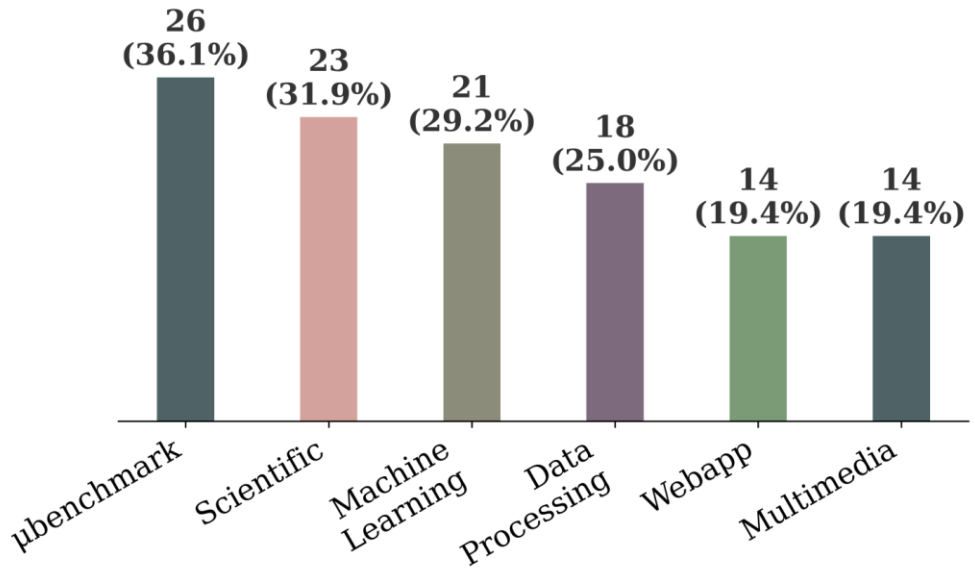

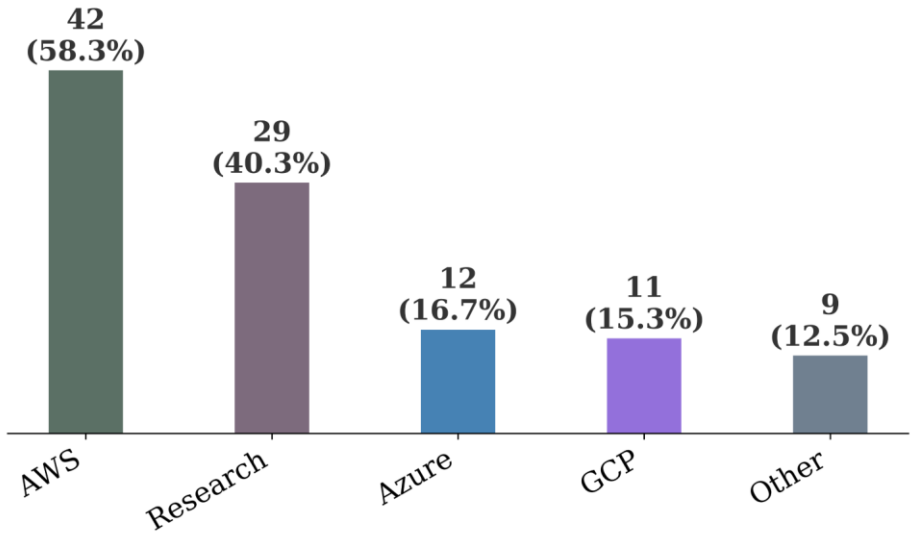

AWS Step Functions

Azure Durable Functions

Google Cloud Workflows

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SeBS-Flow: Let the Work Flow in the Cloud

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Join Larissa's talk on Thursday!
9:00 AM, EuroSys Session 7.1

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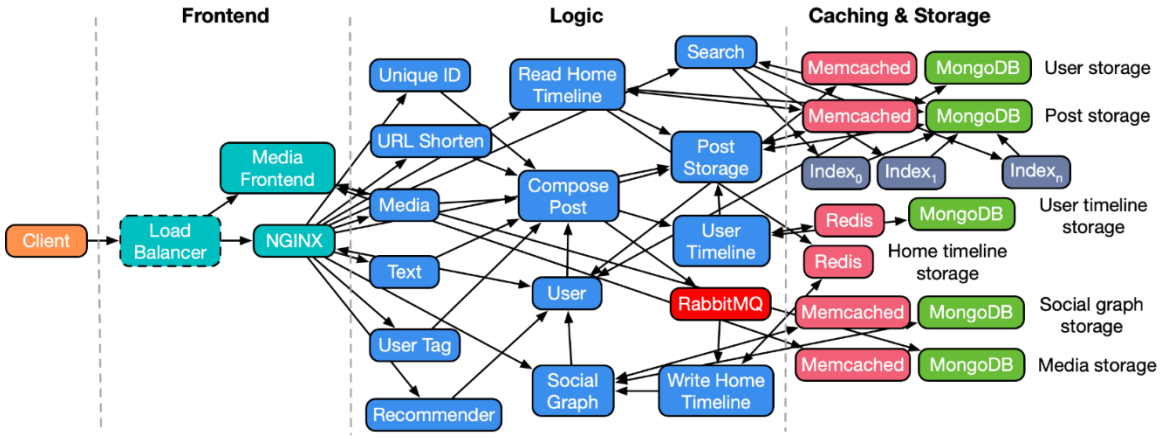
New Workloads



Source: https://github.com/delimitrou/DeathStarBench/tree/master/socialNetwork

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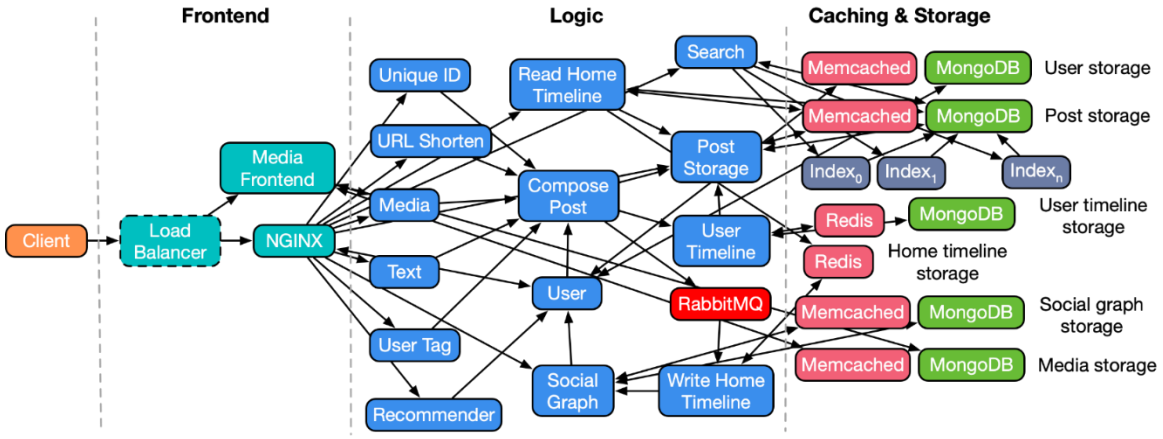
New Workloads

Realistic Invocations



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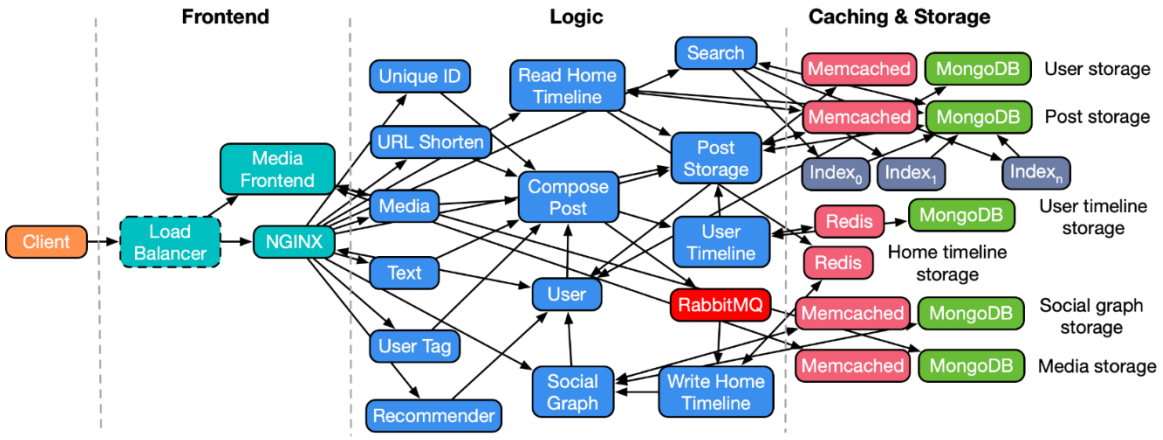

Realistic Invocations

Serverless in the Wild: Characterizing and Optimizing the Serverless Workload at a

How Does It Function? Characterizing Long-term Trends in Production Serverless Workloads

Pau

The globus compute dataset: An open function-as-a-service dataset from the edge to the cloud

André Bauer [a,b,*], Haochen Pan [a], Ryan Chard [b], Yadu Babuji [a], Josh Bryan [a], Devesh Tiwari [c], Ian Foster [b,a], Kyle Chard [a,b]

[a] University of Chicago, United States
[b] Argonne National Laboratory, United States
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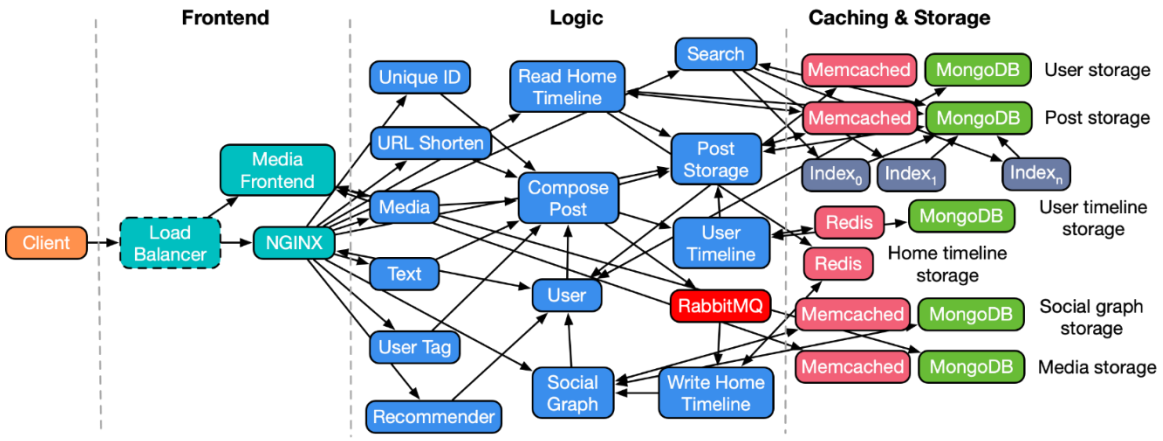

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Heterogeneous Serverless

AI/ML is Difficult Without GPUs
How to share GPUs efficiently?

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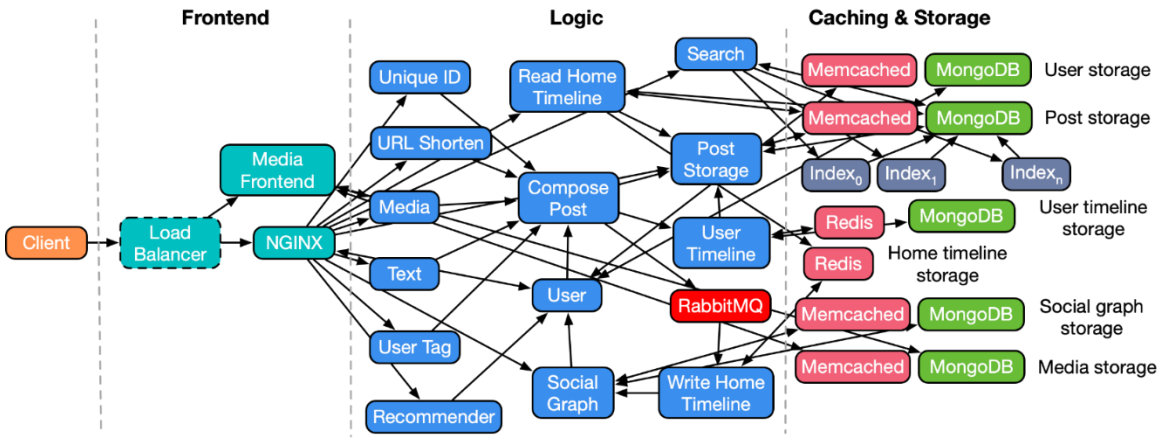

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Heterogeneous Serverless

AI/ML is Difficult Without GPUs
How to share GPUs efficiently?

Usability

Bring-your-own-function
Custom deployment, automatic experiments

Source: https://github.com/delimitrou/DeathStarBench/tree/master/socialNetwork

spcl/serverless-benchmarks

More of SPCL's research:

youtube.com/@spcl — 210+ Talks

twitter.com/spcl_eth — 1.6K+ Followers

github.com/spcl — 5,5K+ Stars

... or spcl.ethz.ch

Research Credits Support:

aws

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SeBS Paper

SeBS-Flow Paper

Serverless Projects

spcl/serverless-benchmarks

With contributions from: Laurent Brandner, Nico Graf, Sascha Kehrli, Prajin Khadka, Abhishek Kumar, Oana Rosca, Larissa Schmid, Mahla Sharifi, Malte Wächter, and Paweł Żuk.

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Do you have an interesting, cutting-edge serverless workload?

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