PERFORMANCE & SCALABILITY OF N-TIER WORKLOADS IN IaaS CLOUDS
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MOTIVATION & PROBLEM STATEMENT

- Clouds are much popular, but not a mature technology.
- More experimental studies are needed to better understand hidden characteristics.
- Multi-Tier applications are complex, thus migration and correct configuration on cloud is challenging.

We analyzed the performance and scalability when migrating n-tier applications from a traditional datacenter to an Infrastructure as a Service (IaaS) cloud.

BENCHMARKS, CLOUDS & EXPERIMENTS

- Benchmarks
  - RUBBoS
  - RUBiS
  - CloudStone
- Clouds
  - Amazon EC2
  - OpenCirrus
  - Emulab
  - Wipro

<table>
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<tr>
<th>Type</th>
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<th>Amazon EC2</th>
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ISSUES & SOLUTIONS

- Multi-Threading overhead – Application Rewrite
- Network Driver overhead – Network Friendly Applications

VARIATIONS IN SCALABILITY

- Emulab – Horizontal Scalability
- OpenCirrus – Horizontal Scalability
- EC2- Horizontal Scalability
- EC2-Vertical Scalability

RESOURCES UTILIZATION

- Tomcat
- MySQL
- Data Node

EXPERIMENT DATA FOR DECISION MAKING