Lessons and Actions:
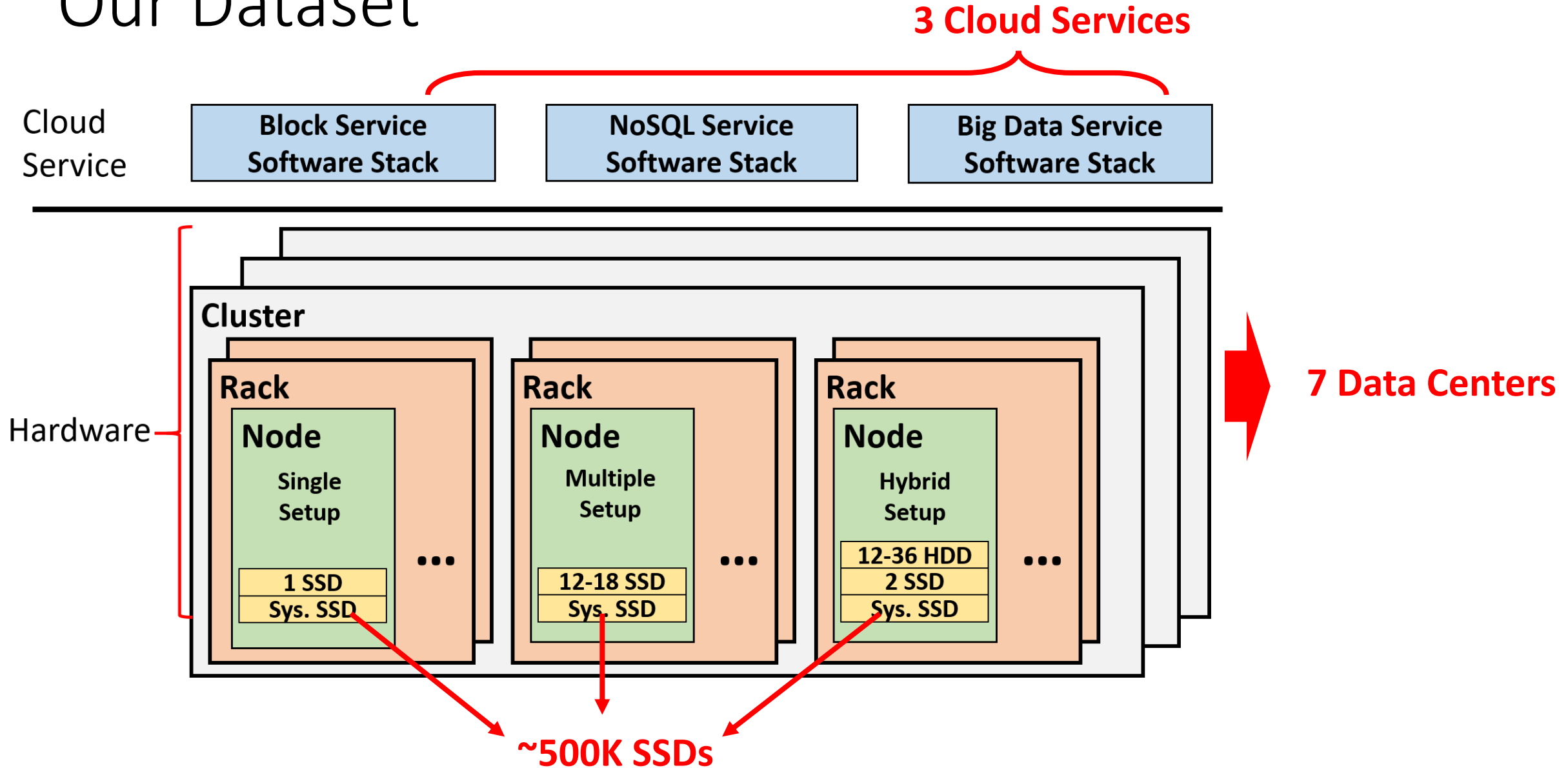# What We Learned from 10K
SSD-Related Storage Failures

Erci Xu, Mai Zheng, Feng Qin, Yikang Xu, Jiesheng Wu

Our Dataset

3 Cloud Services

Cloud Service

Block Service Software Stack | NoSQL Service Software Stack | Big Data Service Software Stack

Hardware

Cluster

Rack | Rack | Rack

Node — Single Setup — 1 SSD — Sys. SSD

Node — Multiple Setup — 12-18 SSD — Sys. SSD

Node — Hybrid Setup — 12-36 HDD — 2 SSD — Sys. SSD

7 Data Centers

~500K SSDs

Our Study

- Focus on RASR failures:
  - **R**eported **A**s **S**SD-**R**elated
  - 10k RASR Failures
  - 2-year study

- Lessons and actions from three aspects:
  - Software Design
  - Hardware Architecture
  - System Administration

- Session: Storage Failure & Recovery
  - 11:50am – 1:10 pm Track I
  - Friday July 12