

Pratyaastha: An Efficient Elastic Distributed SDN Control Plane



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SDN Control Plane

- Operator goals:

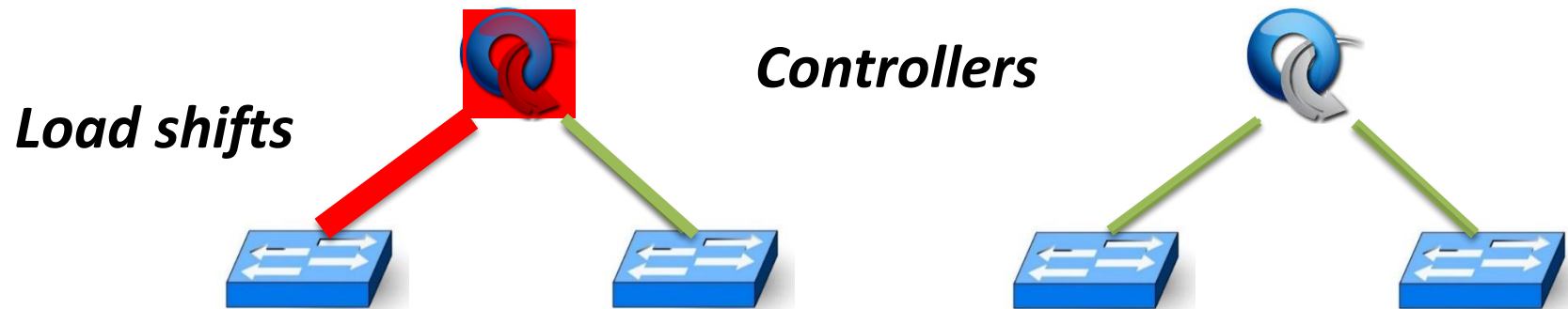
1. Better Performance – Minimizing flow setup latency
2. Lower Operating Cost – Efficient controller resource allocation



Challenges faced by operators

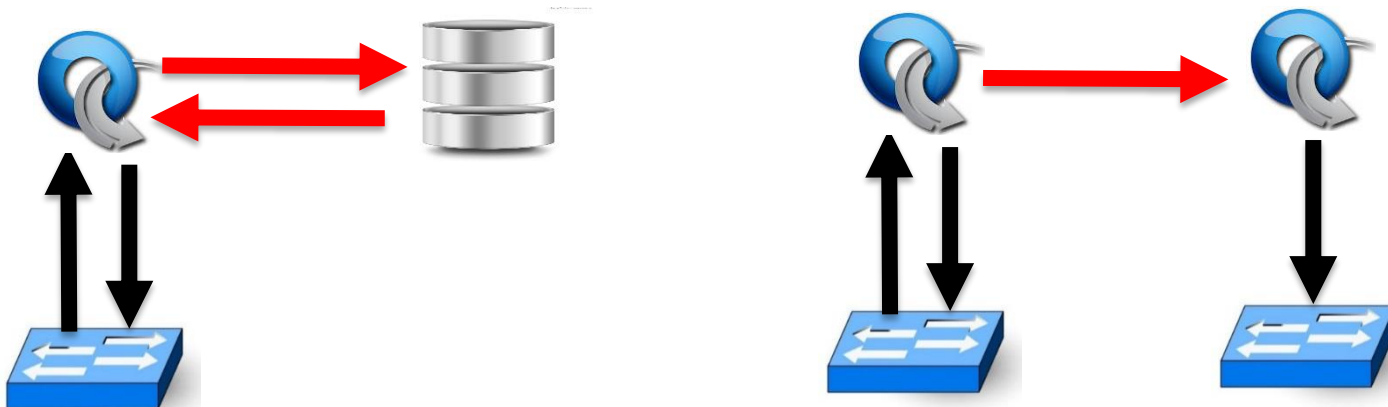
Challenges faced by operators

- Static switch assignment



**Overload or
Inefficient Resource
Utilization**

- State Storage and Access

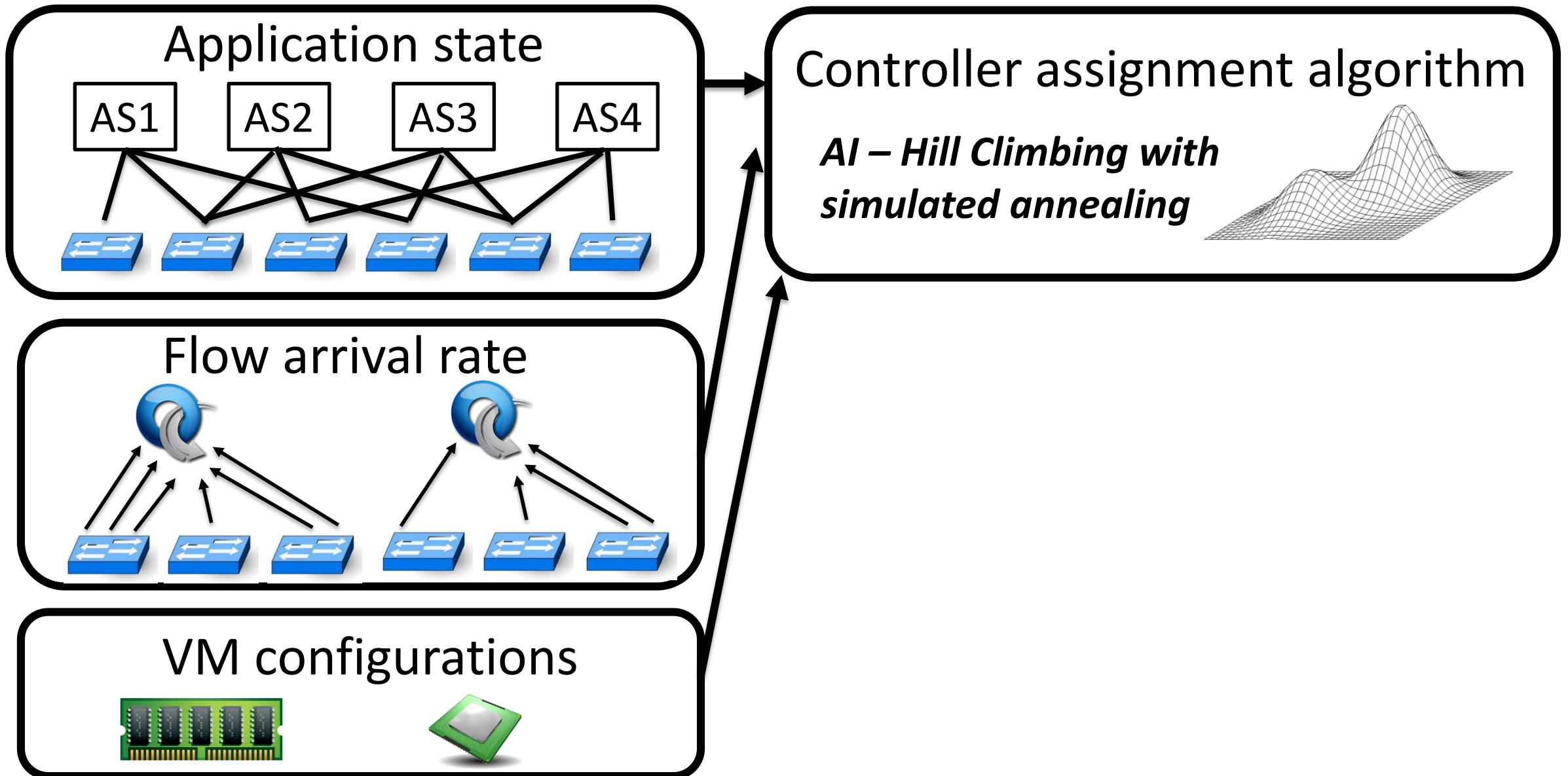


**Increases flow
setup latency**

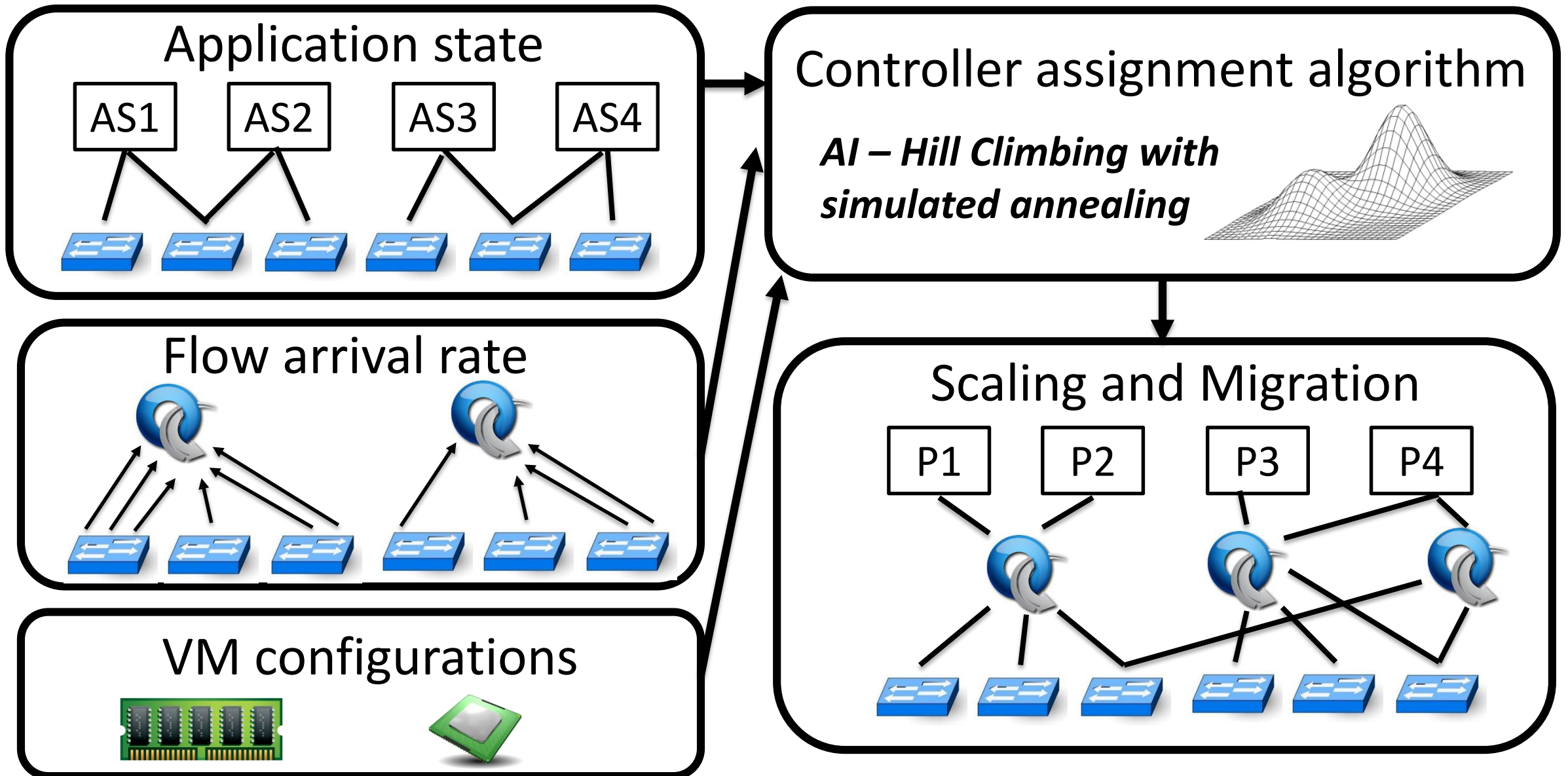
Pratyaastha - Architecture

***Joint optimization of Inter-controller communication and
Resource consumption***

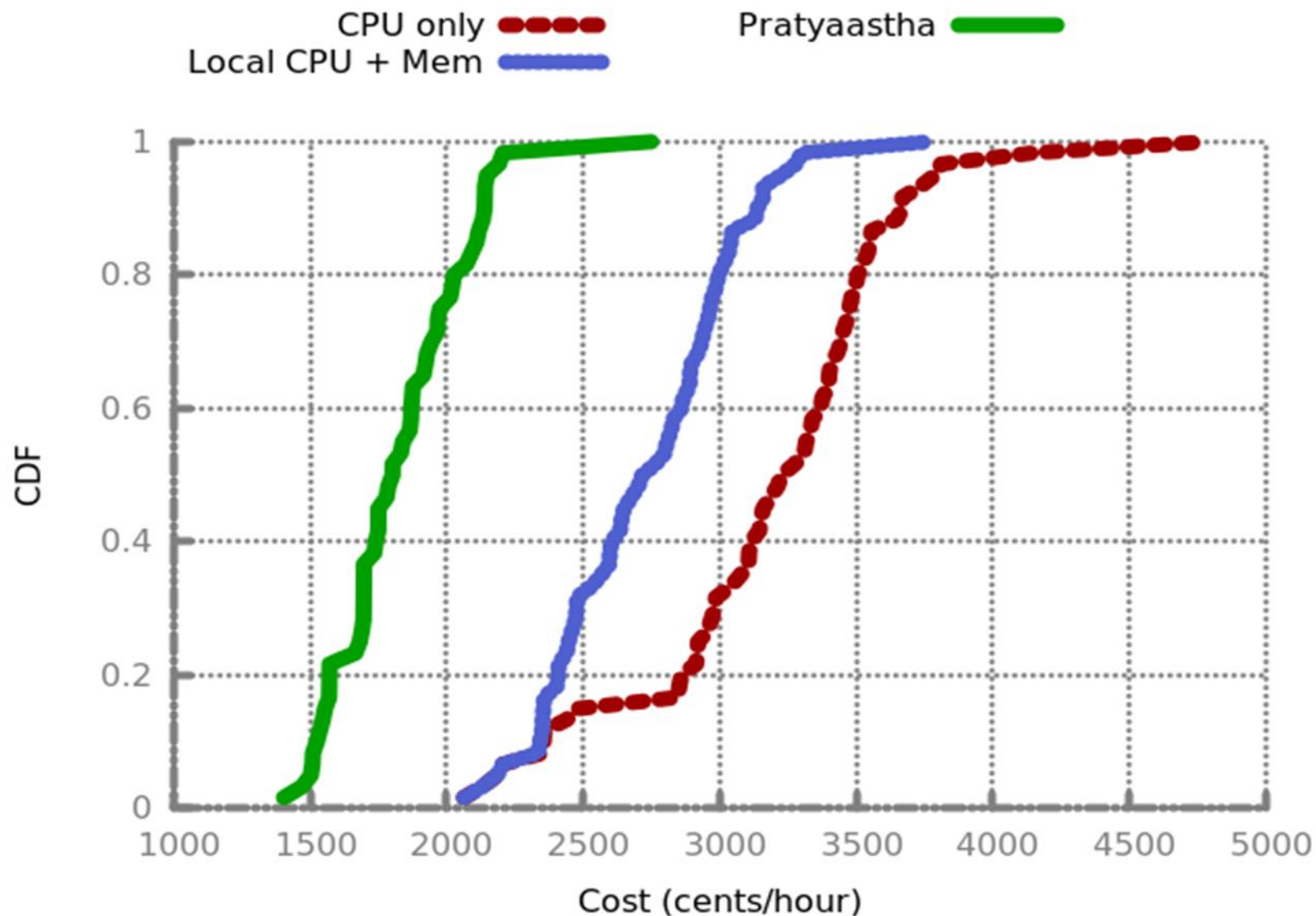
Pratyaastha - Architecture



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Evaluation

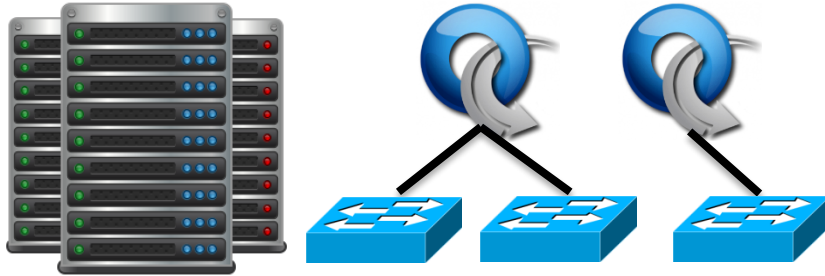


Topology and traffic from a private datacenter

33% and 42% decrease in cost when compared with 'Local CPU + Mem' and 'CPU only' respectively

44% decrease in flow-setup latency

Summary



Praytaastha: An Efficient Elastic Distributed SDN Control Plane

- Novel assignment of application state partitions and switches to controller instances
- Minimizes flow setup latency
- Minimizes controller operating costs