E-commerce WS2016 Final Presentation

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Agenda

- Algorithm for mistakes handling. Baseline VS improved algorithm

- SLAs application

- Controller logic & infrastructure
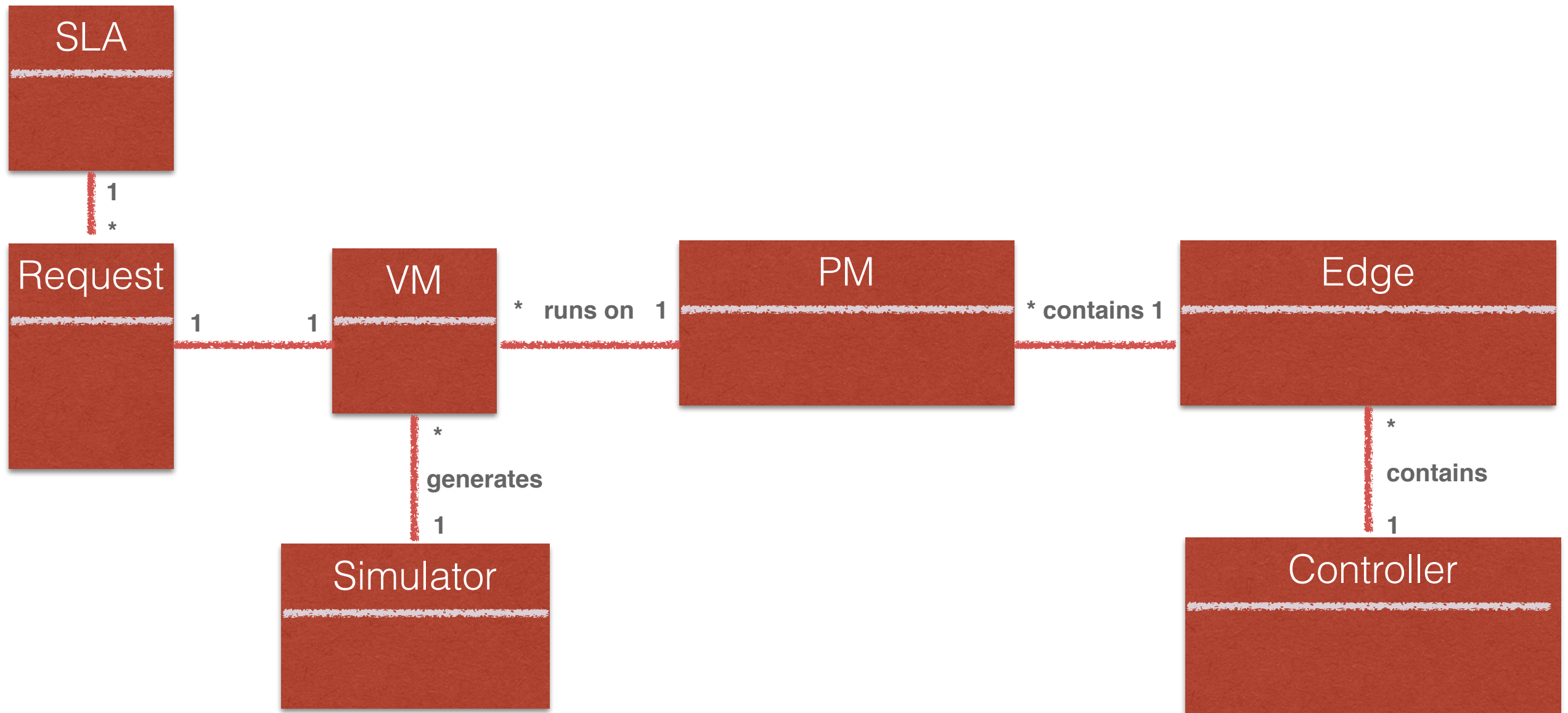
- Results presentation & analysis

Algorithm for mistakes handling

Baseline	Improved baseline
Retry	Retry with job migration
- Retry every failure for 5 times (PM/Edge) - If request was not handled: request failed	- Retry every failure for 2 times (PM/Edge), then - migrate to the closest Edge - If request was not handled: request failed

SLA application

	SLA 1	SLA 2	SLA 3
Cores	1	2	2
CPU	3 GHz	4GHz	2GHz
Memory	4 GB	8 GB	3 GB
Network bandwidth	54 Mbit/sec	108 Mbit/sec	27 Mbit/sec
Network bandwidth between edges	600 Mbit/sec	600 Mbit/sec	600 Mbit/sec
Latency	70 ms	90 ms	140 ms
Availability of infrastructure	>99.95%	>98.95%	>85%

Infrastructure

SLA

Request

VM

PM

Edge

Simulator

Controller

1

*

1 1

* runs on 1

* contains 1

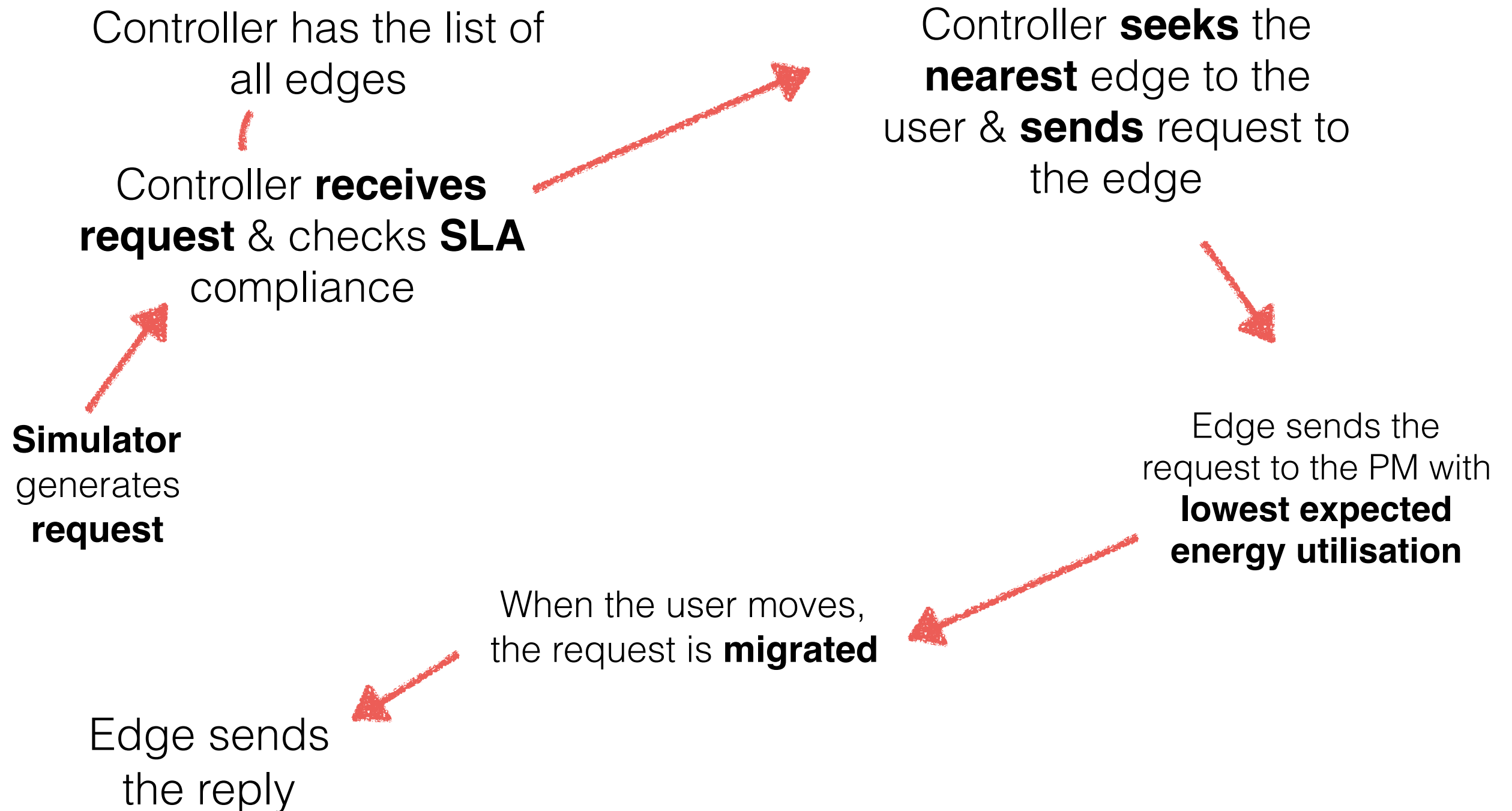* generates 1

* contains 1

Infrastructure

Controller

- stores all edges
- allocates VMs to proper edges
- monitors energy consumption of the grid
- monitors latencies in the grid
- (energyUtilisation)->min during migration

Edge

- based on energy utilisation, allocates VMs to PMs

Controller Logic

Controller has the list of all edges

Controller **seeks** the **nearest** edge to the user & **sends** request to the edge

Controller **receives request** & checks **SLA** compliance

Simulator generates **request**

Edge sends the request to the PM with **lowest expected energy utilisation**

When the user moves, the request is **migrated**
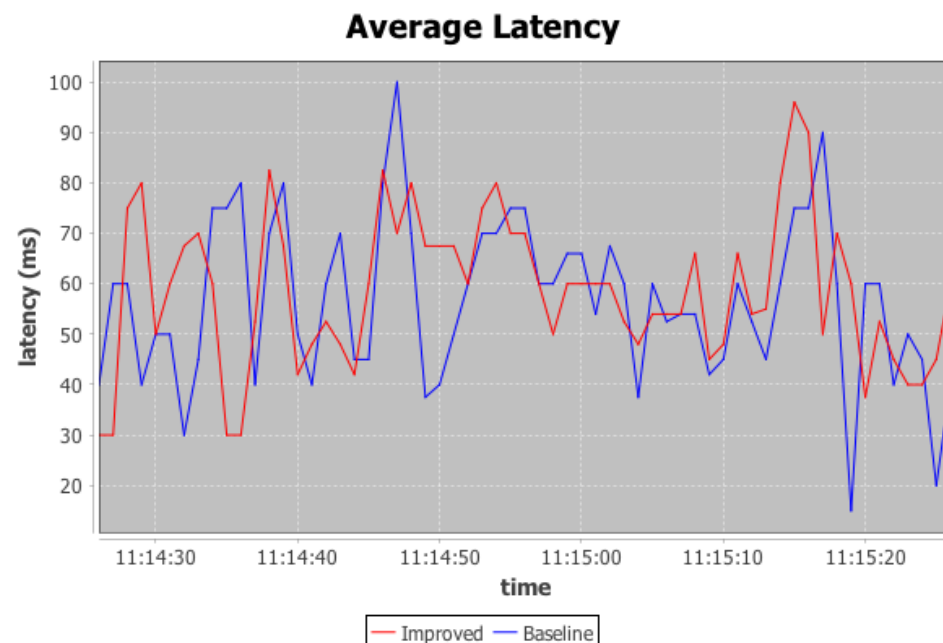
Edge sends the reply

Print screens of the output results
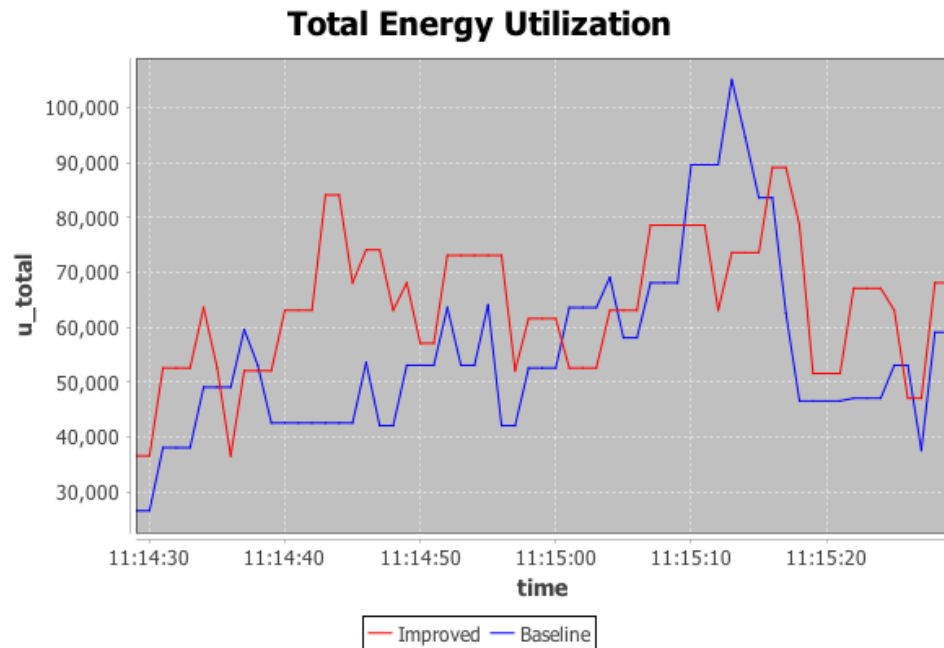
Baseline:

```
---Final Failure Handling Result [Retry]---
Total Edge Failures [Baseline]: 1105
Total Edge Fixes [Baseline]: 120
Total PM Failures [Baseline]: 410
Total PM Fixes [Baseline]: 36
Total Requests generated:387
```


Improved baseline:

```
---Final Failure Handling Result [Retry + Job
Migration]---
Total Edge Failures [Improved]: 1125
Total Edge Fixes [Improved]: 53
Total PM Failures [Improved]: 412
Total PM Fixes [Improved]: 7
Total Requests generated:410
```

Thank you!