

# 科技部計畫: 雲端視訊處理平台技術

MOST 105-2221-E-011-116

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## 1. Motivations

### ● Mobile Devices are widely used

- It needs cloud computation to perform video processing
- Perform video transcoding to provide different quality video streams.
- Efficient Task Scheduling dominate the Cloud Computation Performances

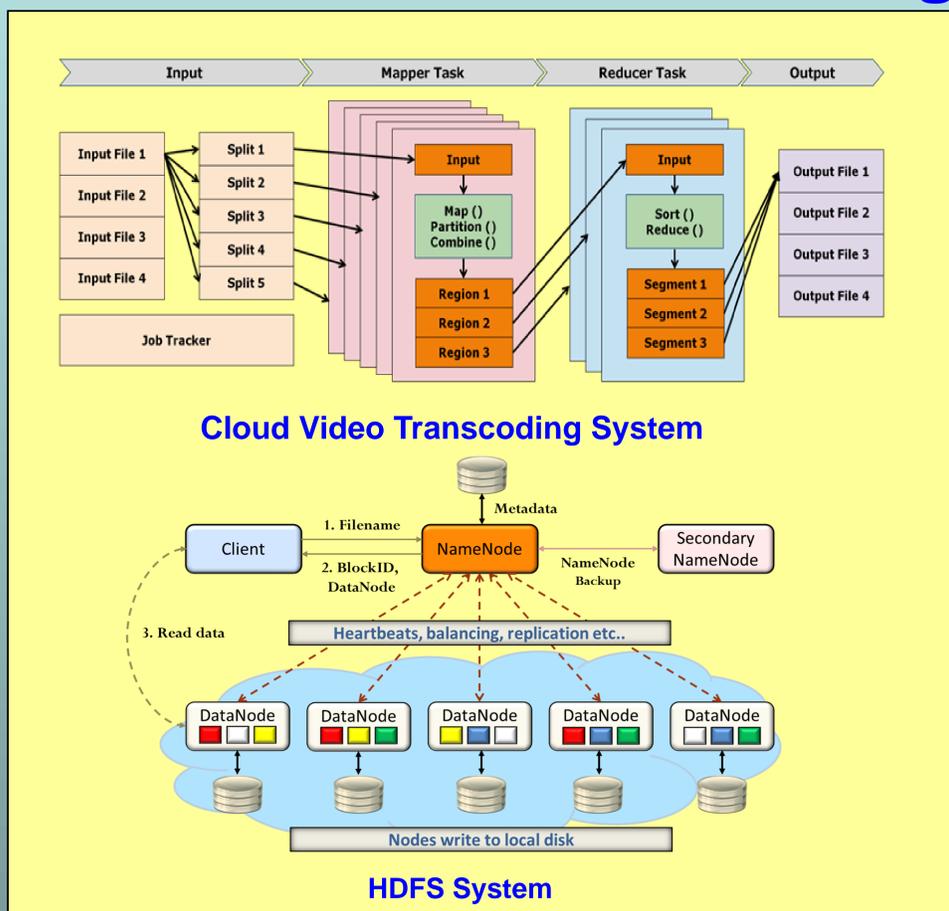
### ● Available Bandwidth Estimation (ABE)

- Helps the server to provide bandwidth compatible bitstream.
- The time and space complexity of ABE should be low

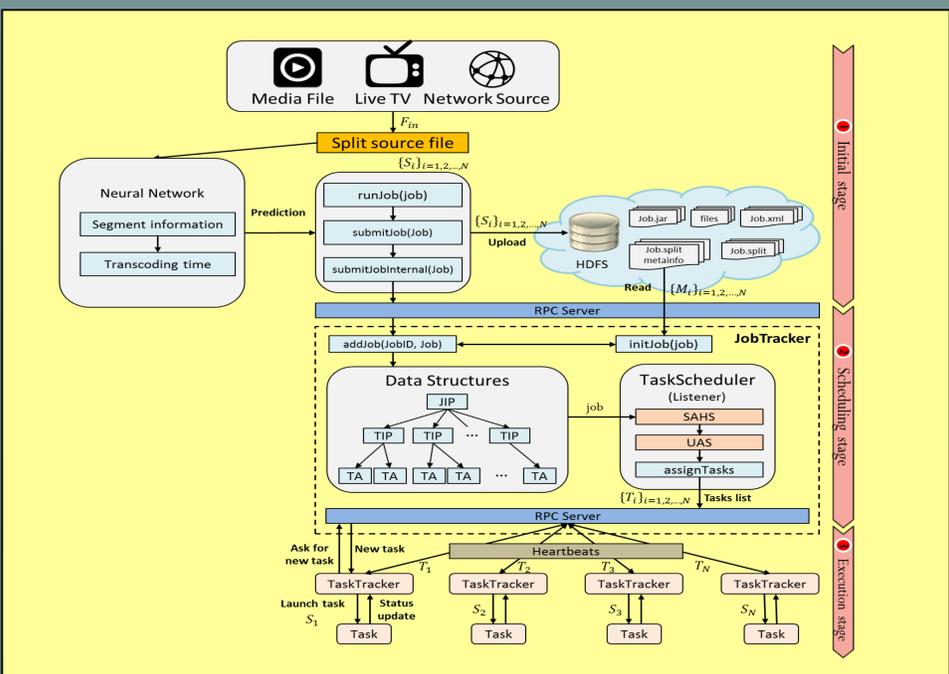
### ● In this project, we proposed to develop

- Efficient Task Scheduler
- Fast ABE Algorithms

## 2. Cloud Video Transcoding

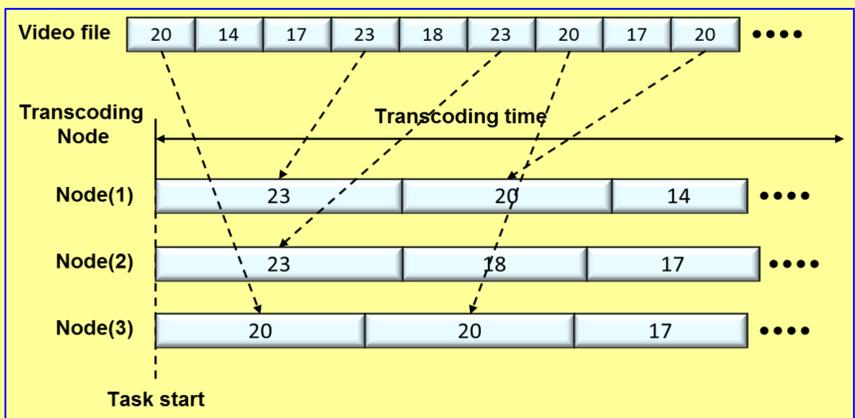


## 3. Task Scheduler Flow

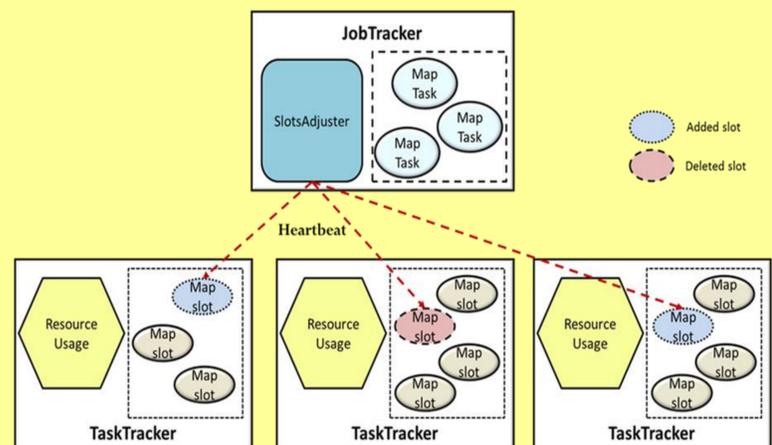


## 4. Proposed Cloud Scheduler

### A. Complexity-Aware Scheduler

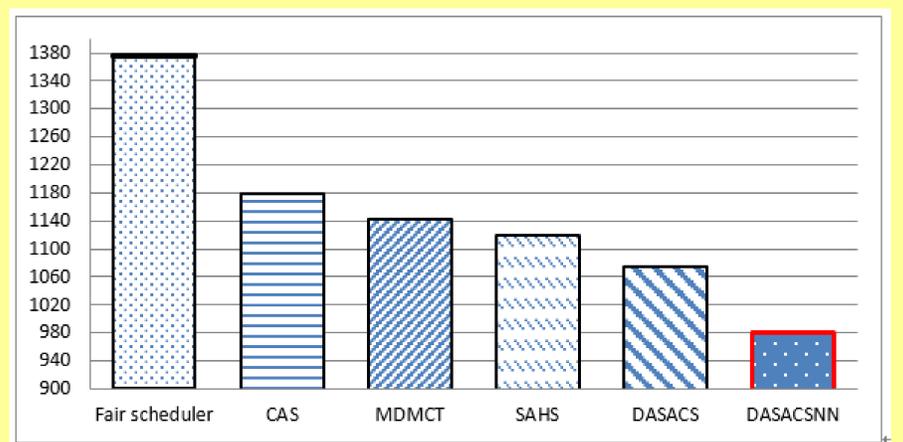


### B. Dynamic Slot Adjustment



## 5. Experimental Results

### ● Time Reduction Performance



### ● Multi-User Job Processing

TABLE VII: Comparisons of execution time among different scheduling methods

Algorithm	FS(2 slots)	CAS	SAHS	DASCAS
ave. completion time $T_p$	1375	1178	1119	1075
$\frac{\Delta T_p}{T_p}$ Improvement (%)	0	14.3	18.6	23.8
RU rate $\mathcal{R}_U$ (%)	84.9	90.3	94.8	96.2

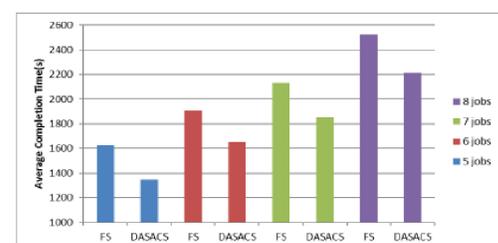


Fig. 15: Comparisons of average completion time,  $T_p$ , under multi-user requested jobs.