

High Definition Video Streaming and Advanced Applications

TDW TaskForce, NCHC, Taiwan

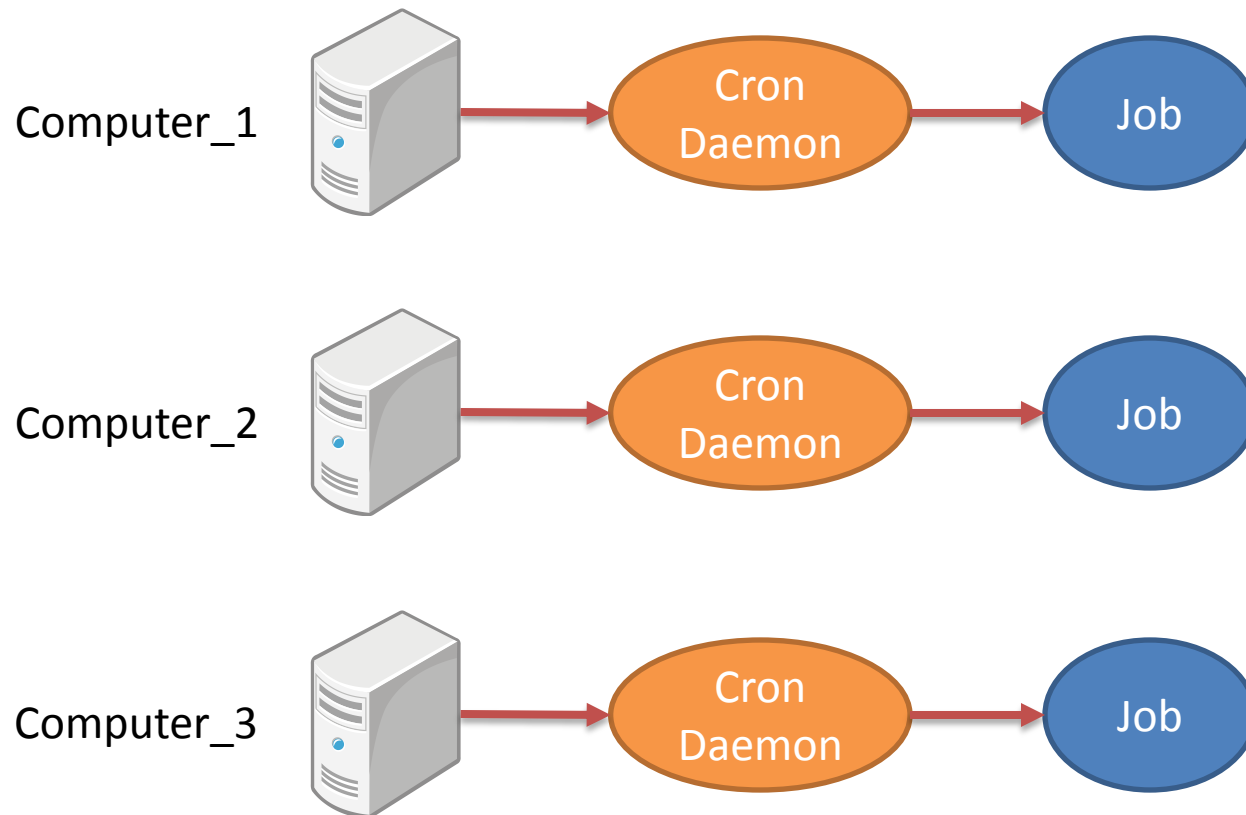
(Fang-Pang Lin, Sun-In Lin, Yi-Haur Shiau, Shi-Wei Lo, Hsiu-Mei Chou,
Yi-Hsuan Chen, Jia-Shin Cheng, Kuo-Tai Tseng)

Outline

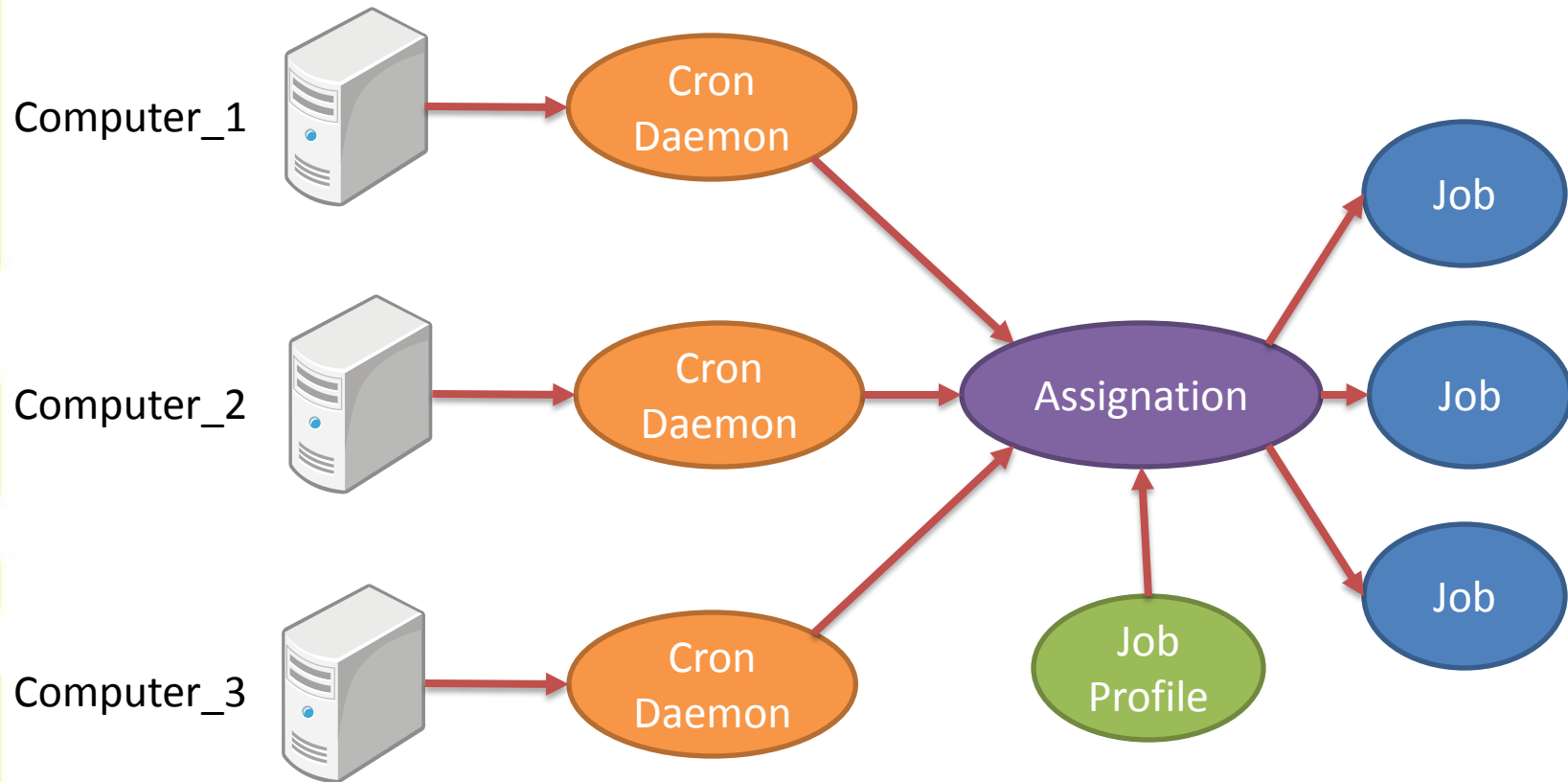
1. Job Submitting and Scheduling in Distributed Environment
2. Historical Clips Production in Real-Time Streaming Environment
3. Stereo Video Clips Production and Method in MonitorGrid

1. Job Submitting and Scheduling in Distributed Environment

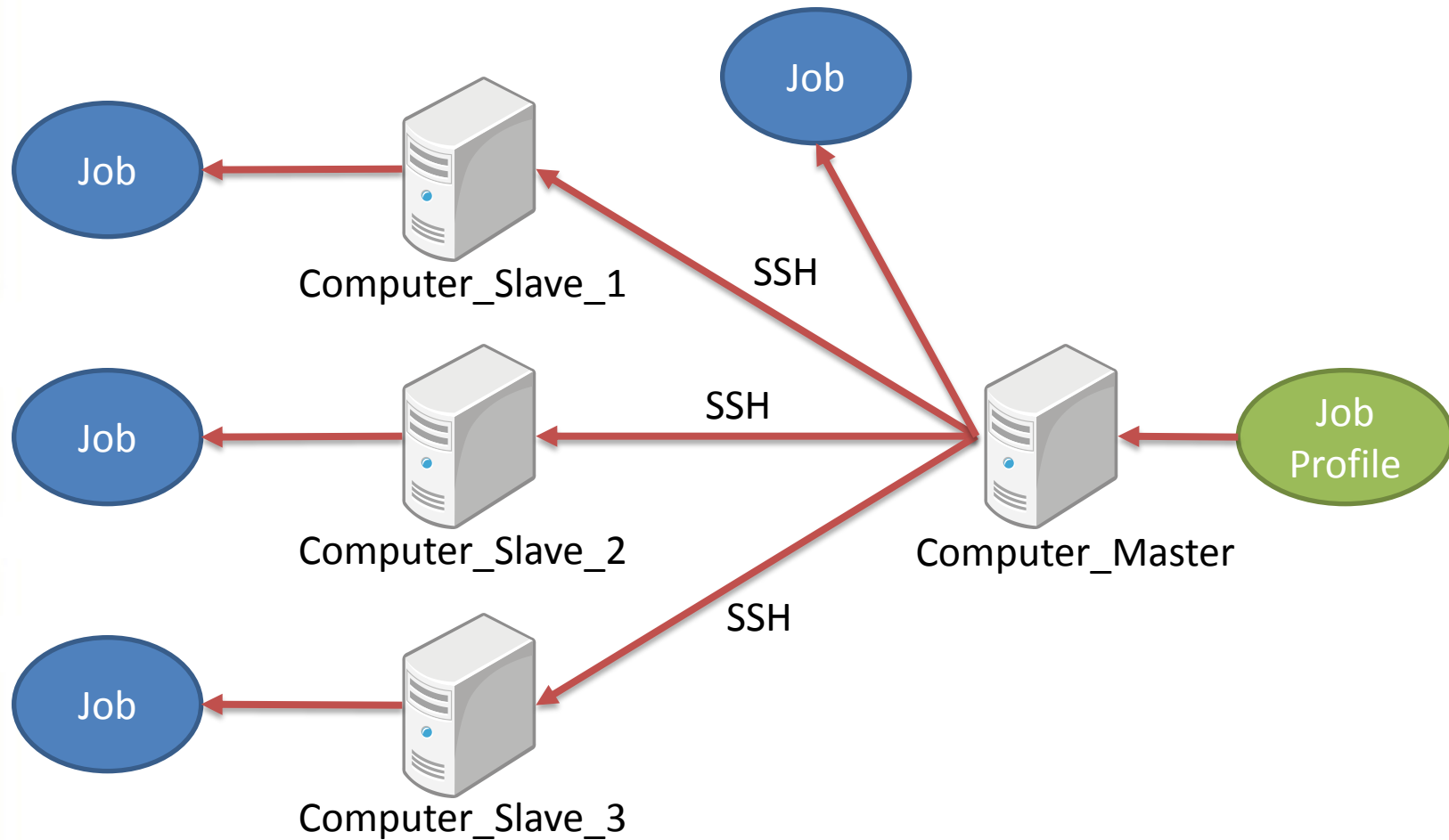
Traditional Mode



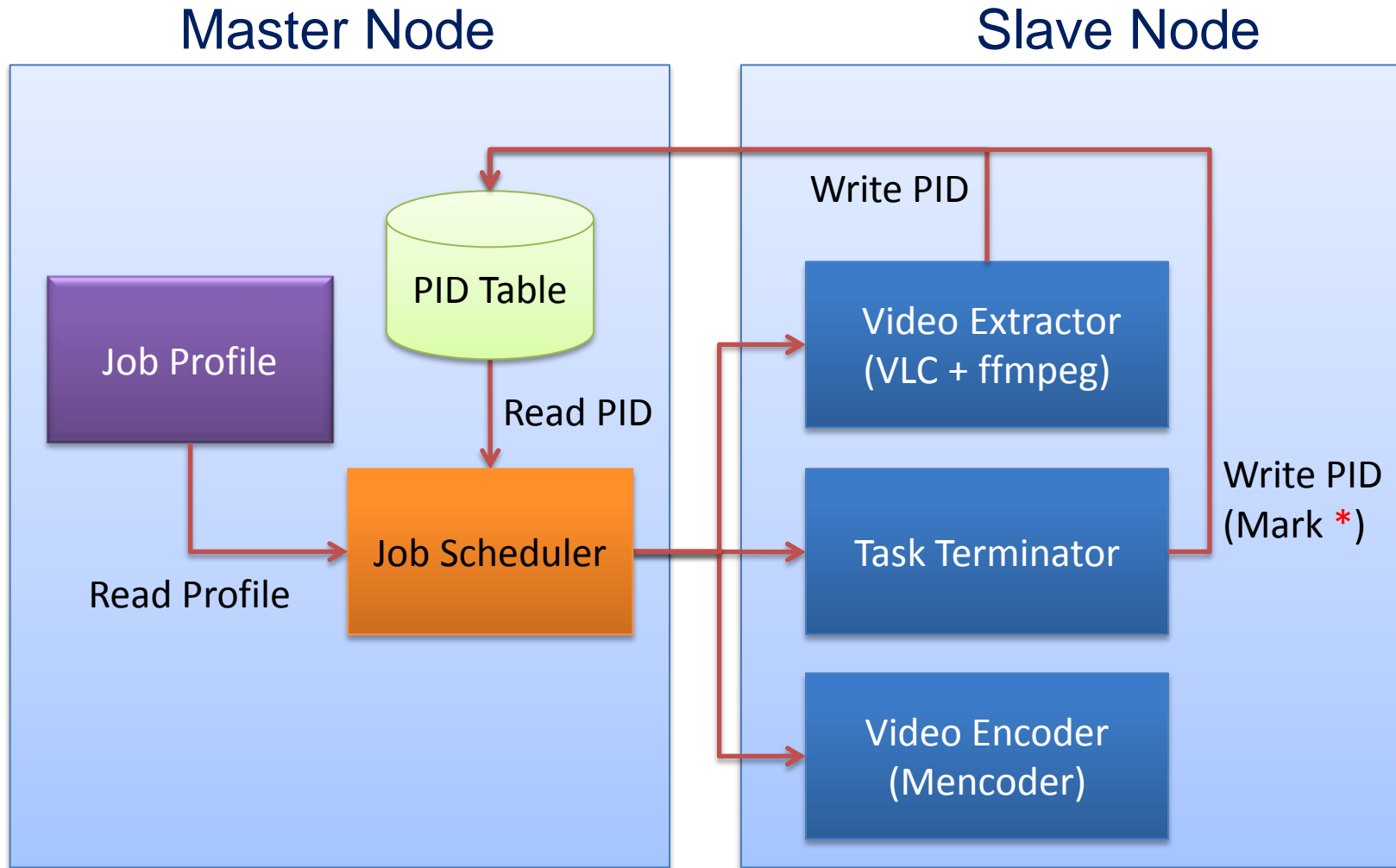
Polling Mode



Dispatched Mode



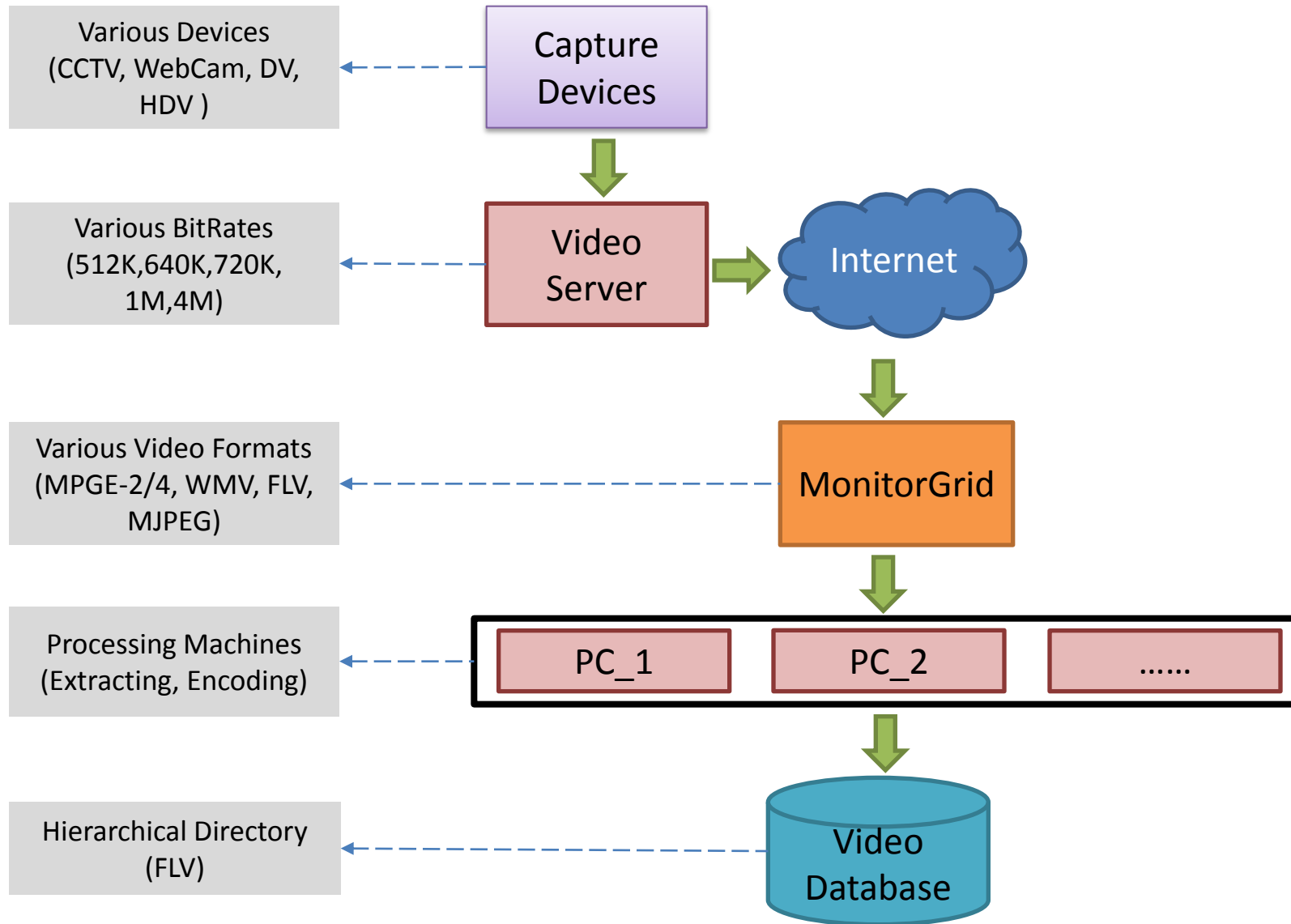
Job Submitting Architecture



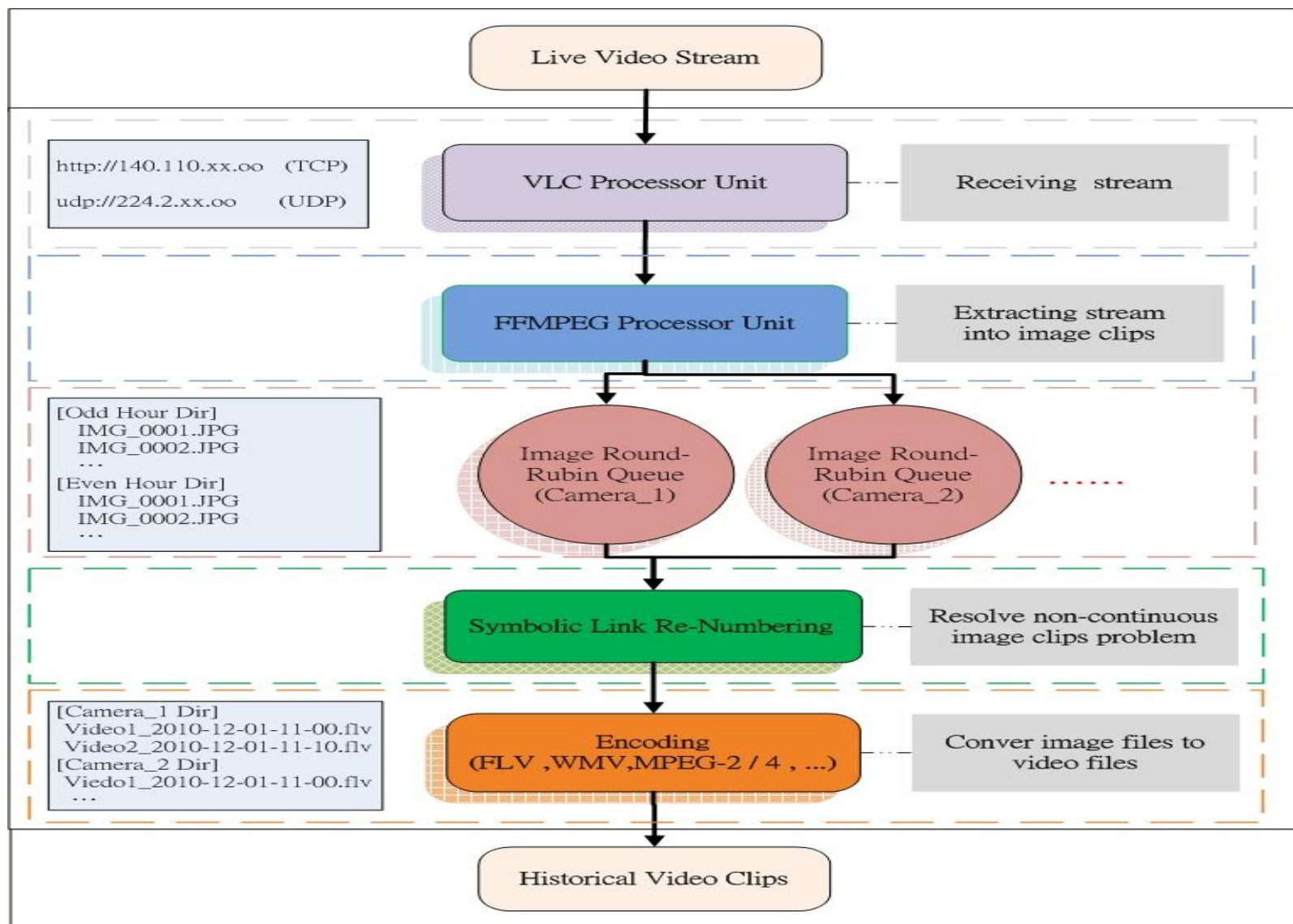
2. Historical Clips Production in Real-Time Streaming Environment



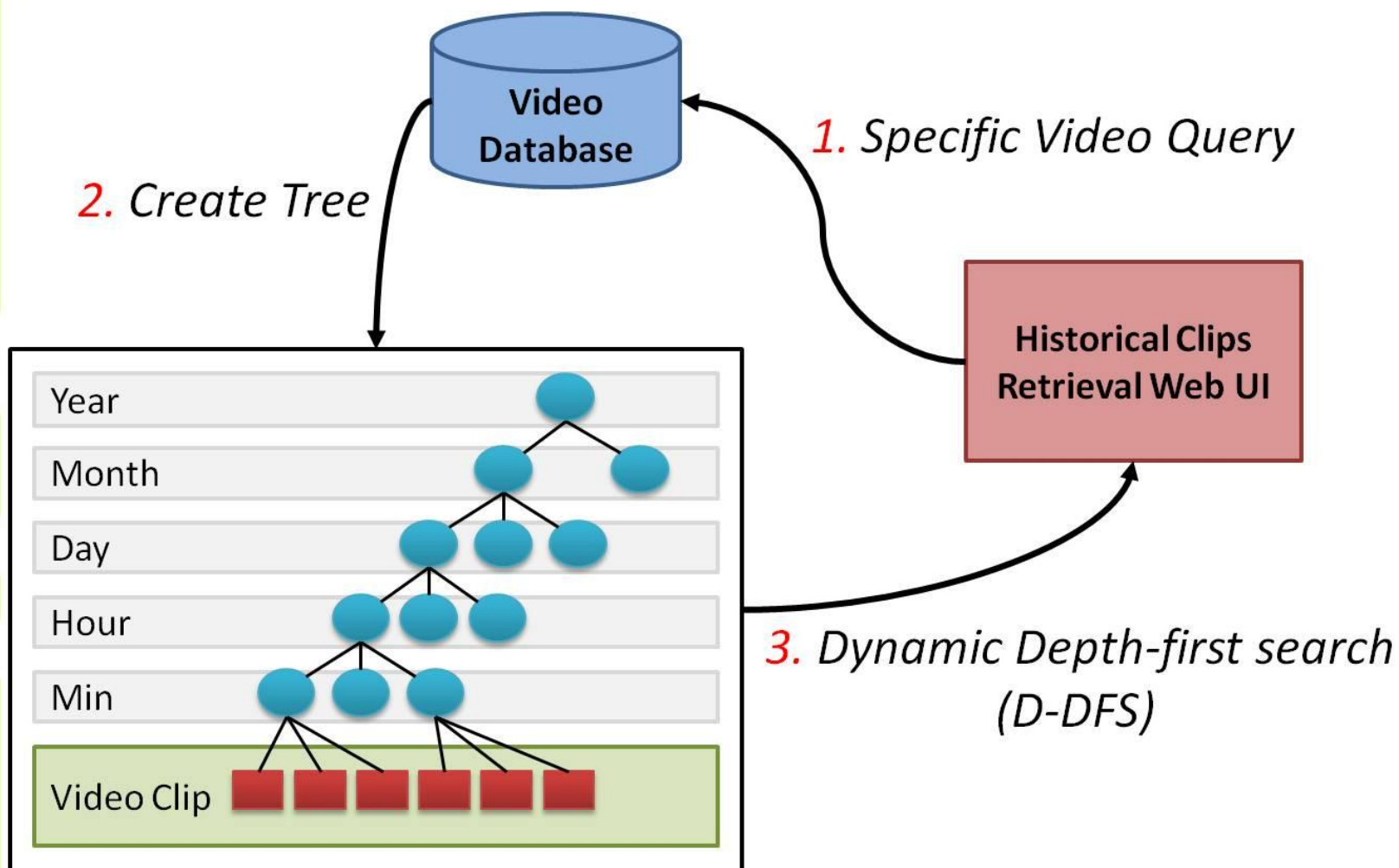
Historical Clips Workflow



Extracting/Encoding Workflow



Historical Clips Retrieval (1/2)



Historical Clips Retrieval (2/2)

2010 ▾ 11 ▾ 23 ▾ 12 ▾ 30 ▾

<< NPP-3 Site >>

[Date : 2010/11/23 Time : 12:30]

【NPP-3 Site】 (320x240, 640K, FLV)



[Year -][Month -][Day -][Hour -][10 Mins -]
[Year +][Month +][Day +][Hour +][10 Mins +]

3. Stereo Video Clips Production and Method in MonitorGrid



Stereo Video Clips Production and Method

① Original Image

② Stereo Format

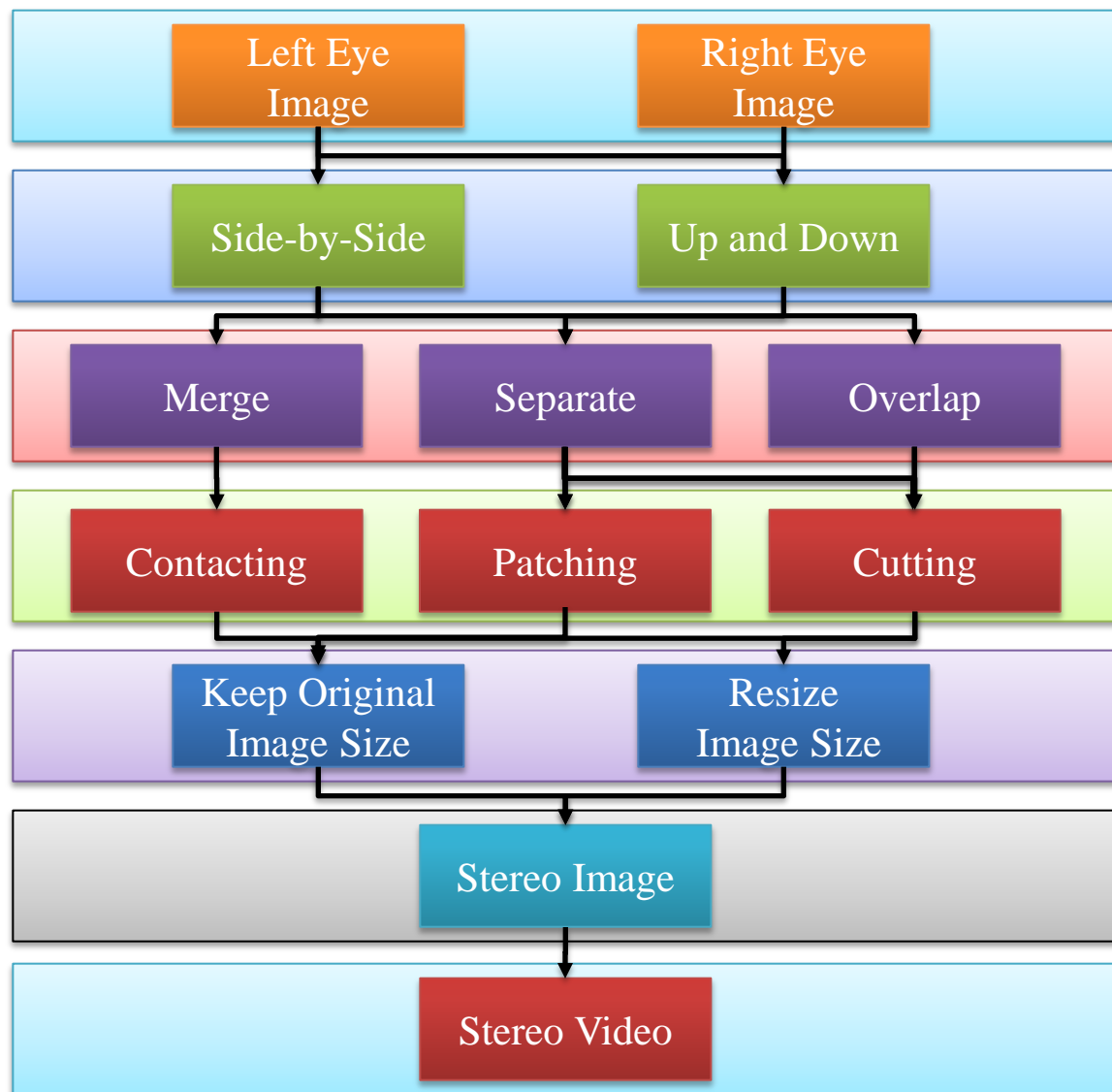
③ Stitch Method

④ Parallax Adjustment

⑤ Image Size Adjustment

⑥ Output Stereo Image

⑦ Output Stereo Video



Stereo Video Clips Production and Method

① Original Image

② Stereo Format

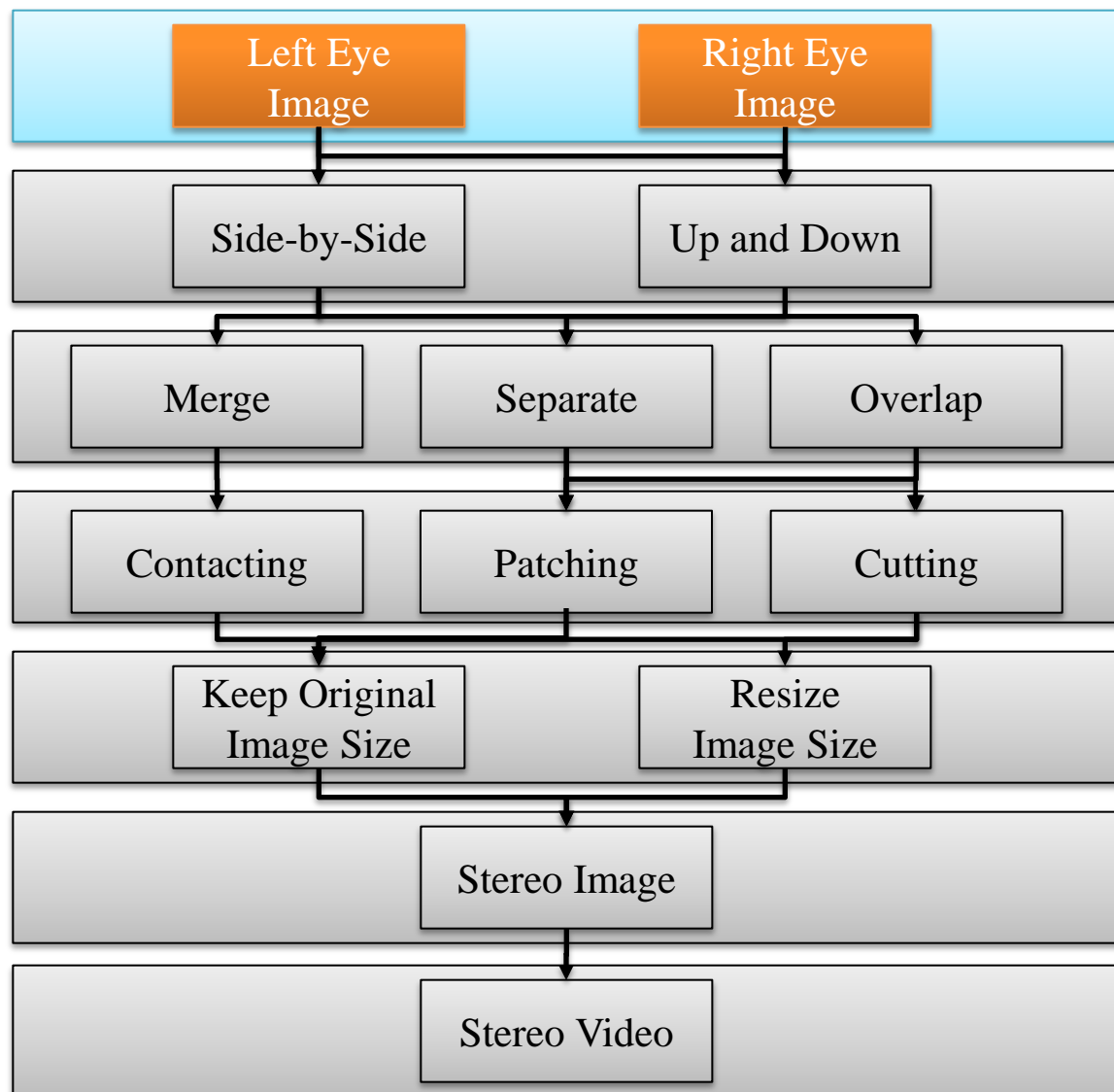
③ Stitch Method

④ Parallax Adjustment

⑤ Image Size Adjustment

⑥ Output Stereo Image

⑦ Output Stereo Video



Left and Right Eye Image Pair



Ex : Left Image (1920x1080)



Ex : Right Image (1920x1080)

Stereo Video Clips Production and Method

① Original Image

② Stereo Format

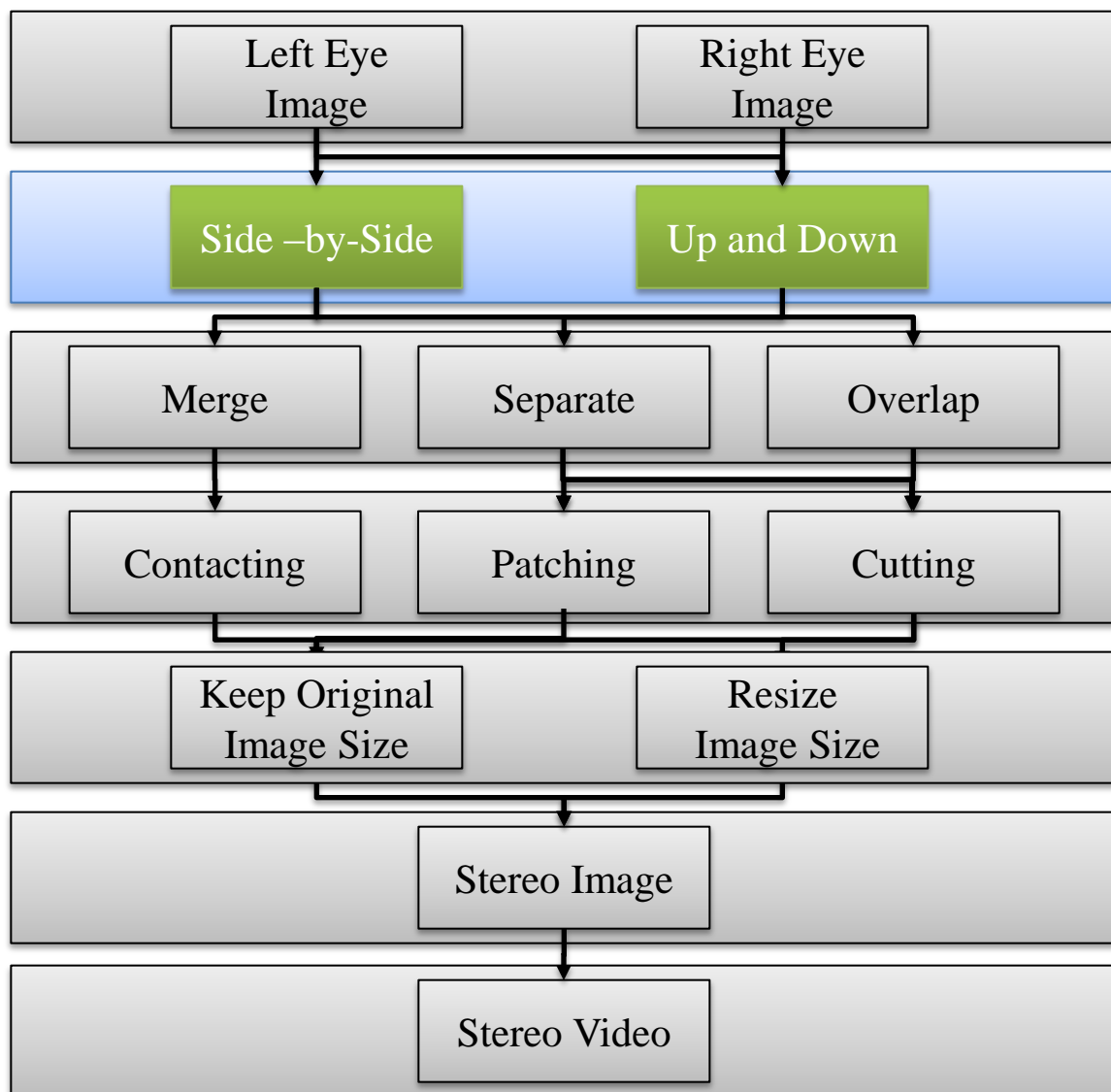
③ Stitch Method

④ Parallax Adjustment

⑤ Image Size Adjustment

⑥ Output Stereo Image

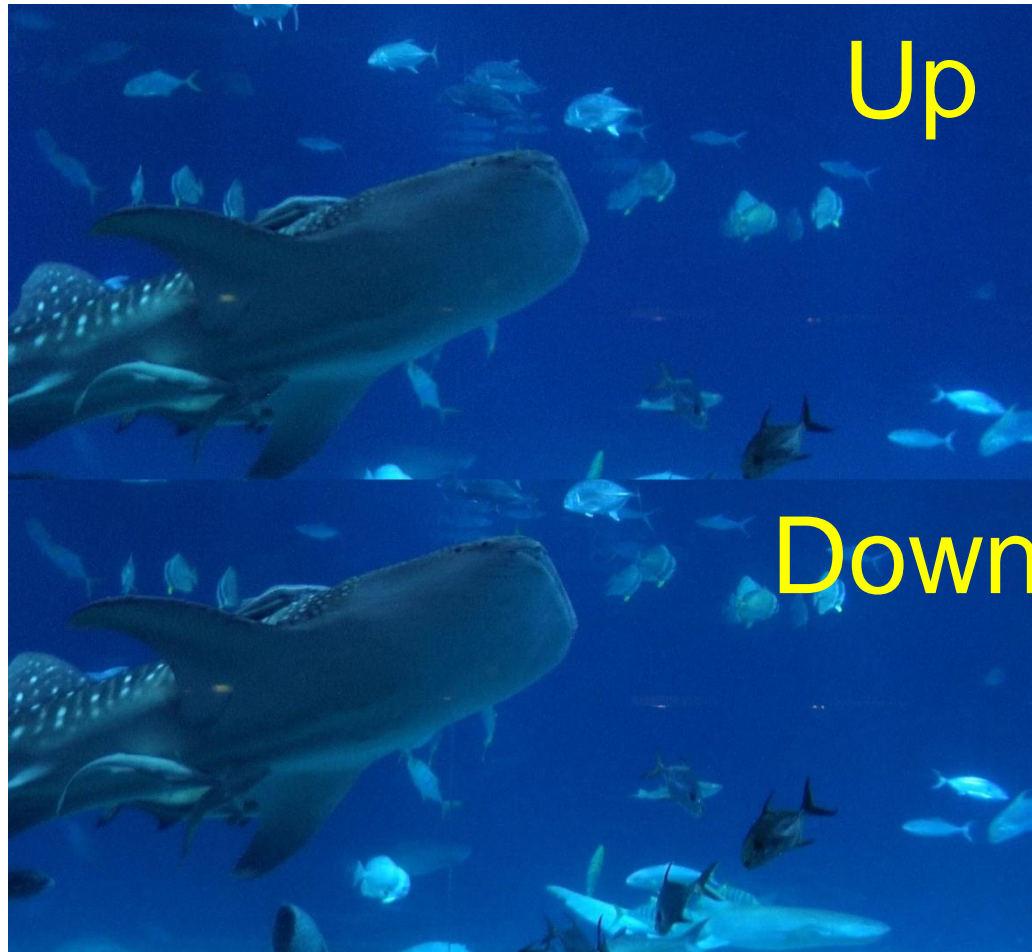
⑦ Output Stereo Video



Stereo Format (Side-By-Side)



Stereo Format (Up and Down)



Stereo Video Clips Production and Method

1 Original Image

2 Stereo Format

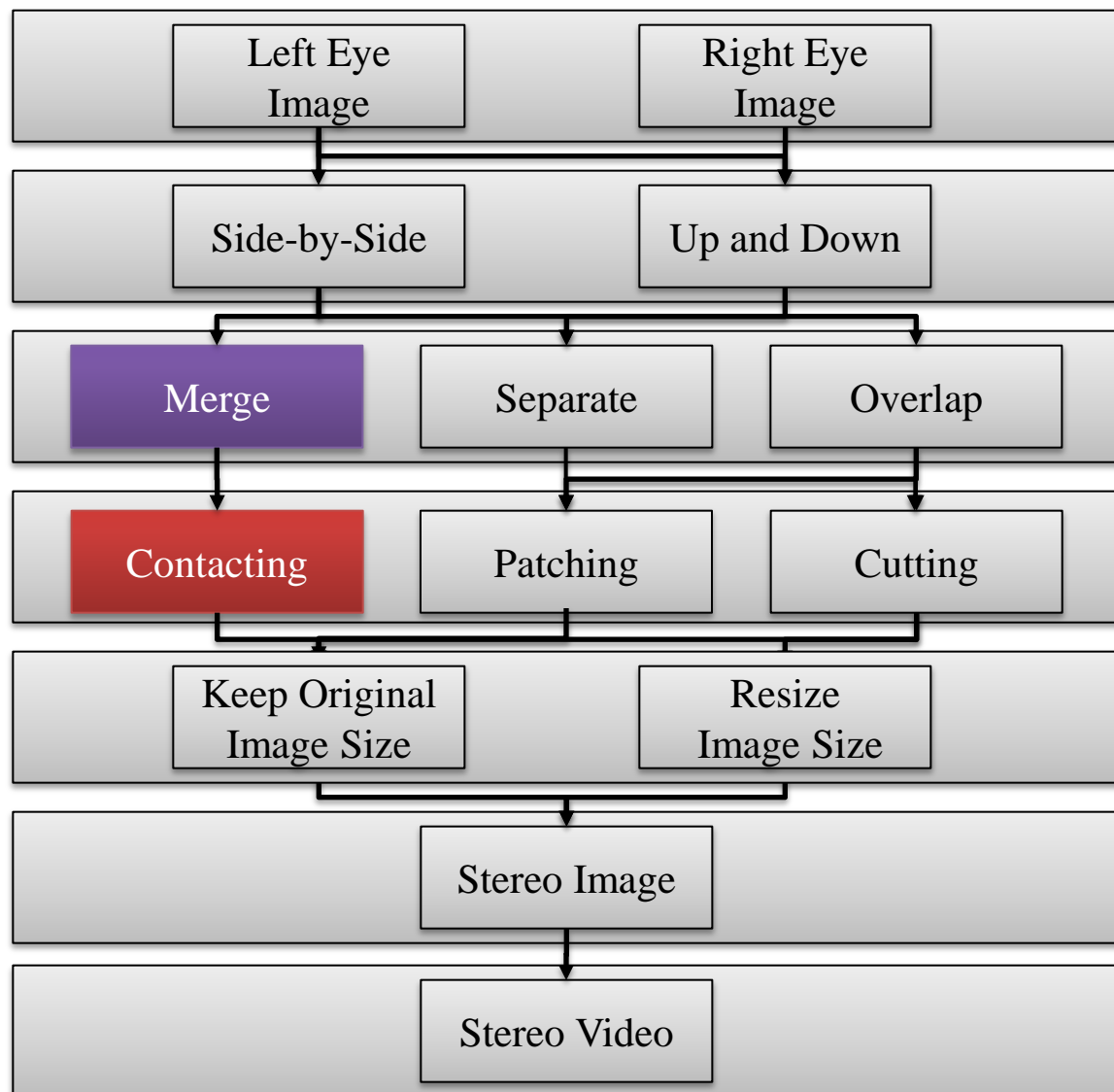
3 Stitch Method

4 Parallax Adjustment

5 Image Size Adjustment

6 Output Stereo Image

7 Output Stereo Video



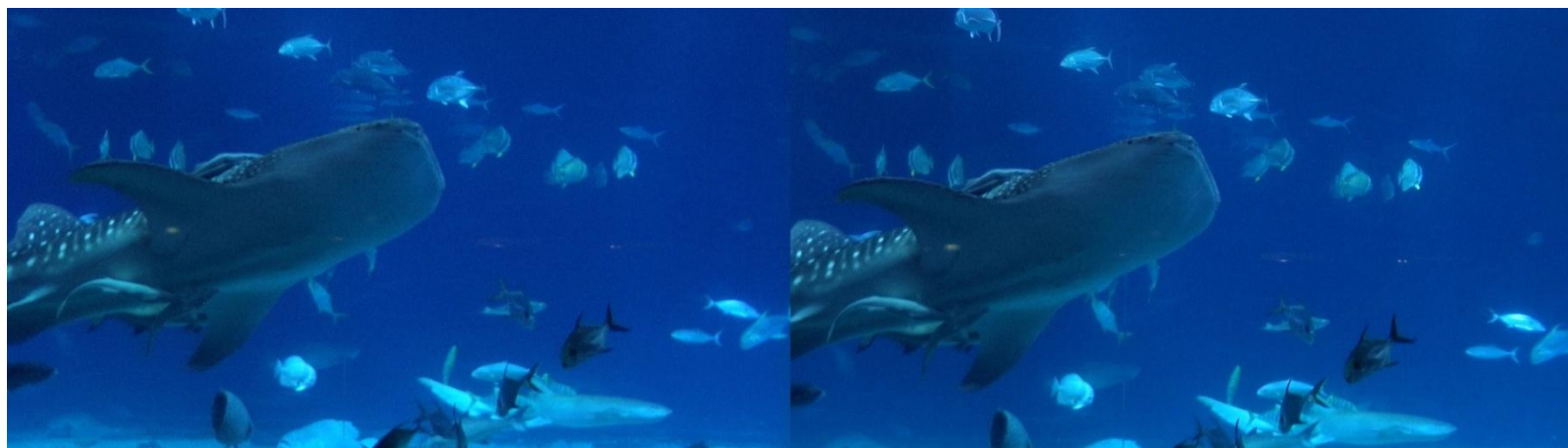
[Merge] Contacting



Ex : Left Image (1920x1080)



Ex : Right Image (1920x1080)



Ex : Merge (3840x1080)

Stereo Video Clips Production and Method

1 Original Image

2 Stereo Format

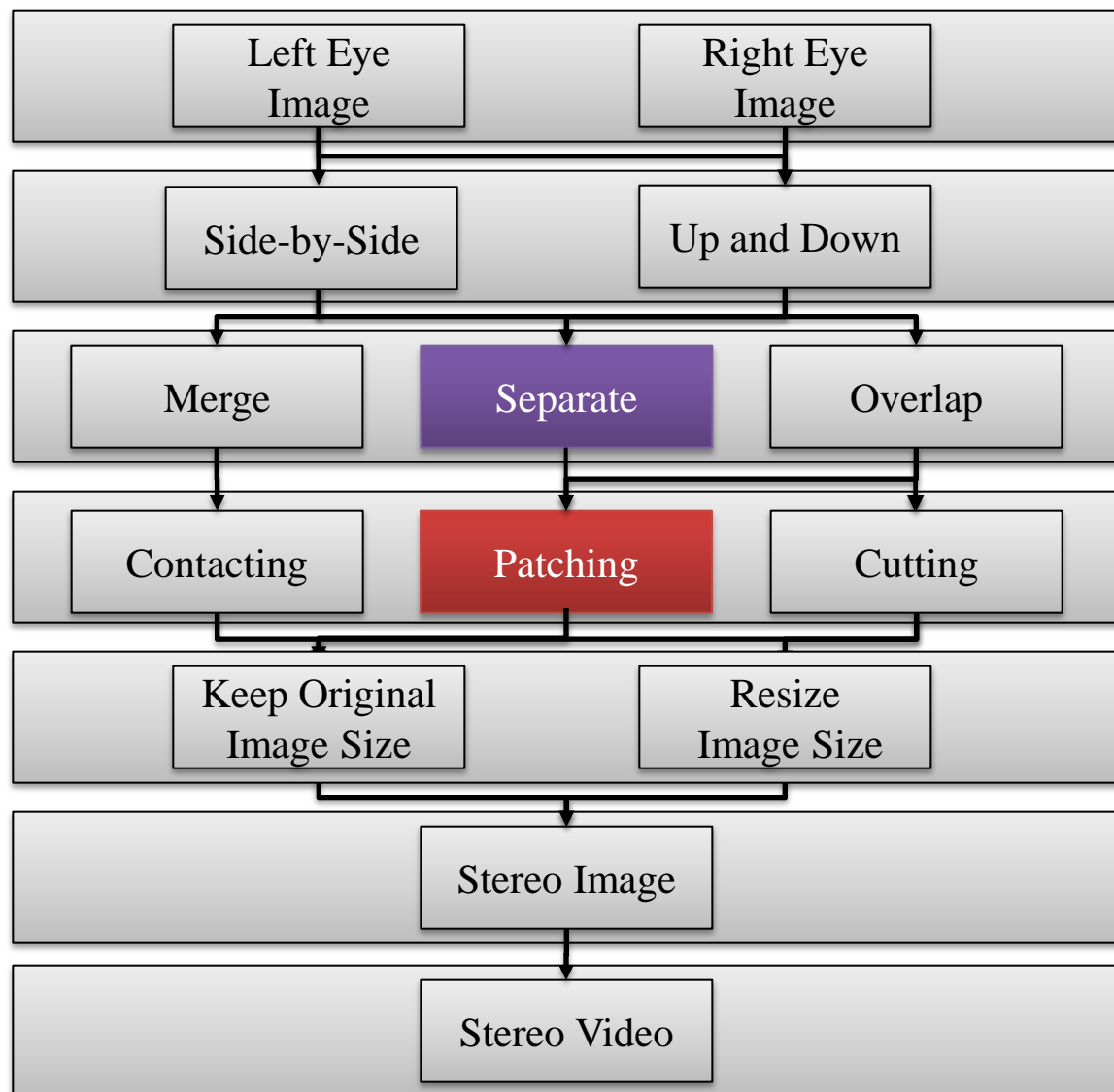
3 Stitch Method

4 Parallax Adjustment

5 Image Size Adjustment

6 Output Stereo Image

7 Output Stereo Video



[Separate] Patching



Ex : Left Image (1920x1080)



Ex : Right Image (1920x1080)



Ex : SideBySide Separate Patching 200 (4240x1080)

Stereo Video Clips Production and Method

1 Original Image

2 Stereo Format

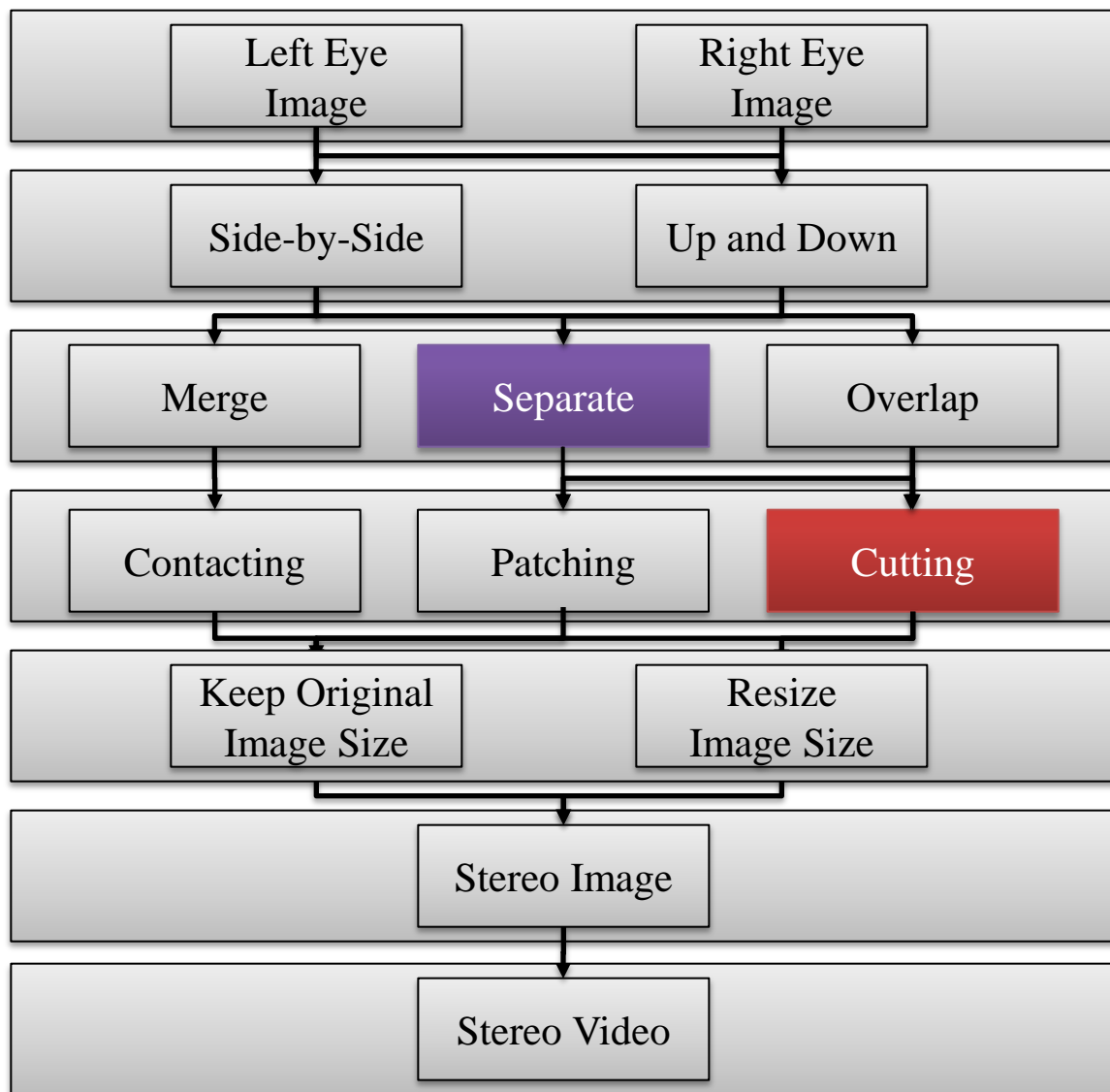
3 Stitch Method

4 Parallax Adjustment

5 Image Size Adjustment

6 Output Stereo Image

7 Output Stereo Video



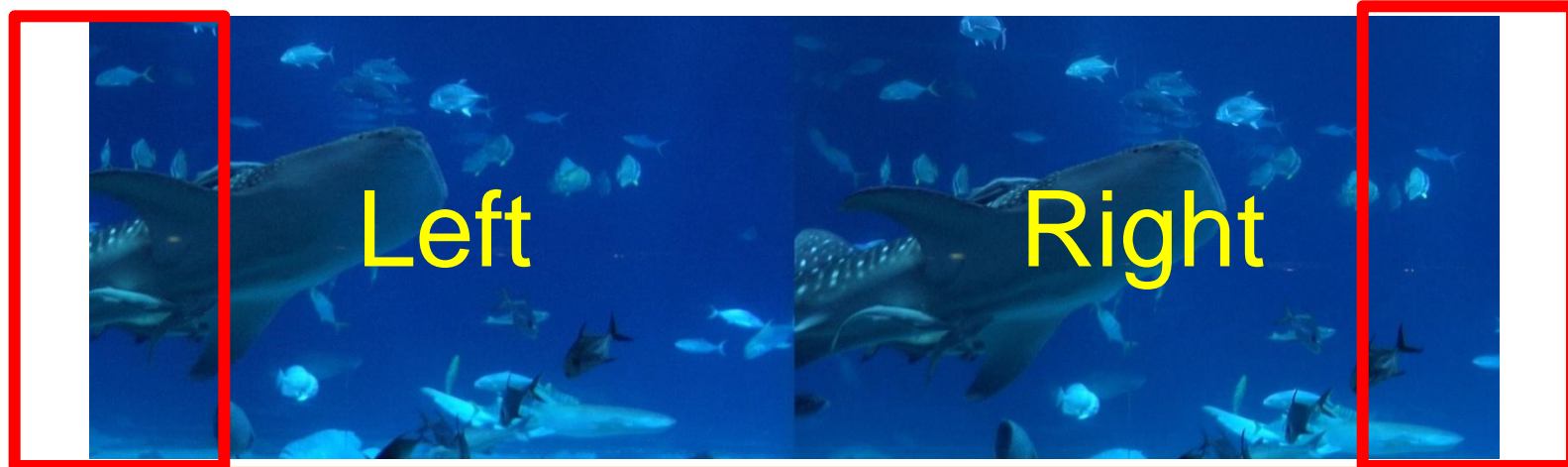
[Separate] Cutting



Ex : Left Image (1920x1080)



Ex : Right Image (1920x1080)



Ex : SideBySide Separate Cutting 200 (3440x1080)

Stereo Video Clips Production and Method

1 Original Image

2 Stereo Format

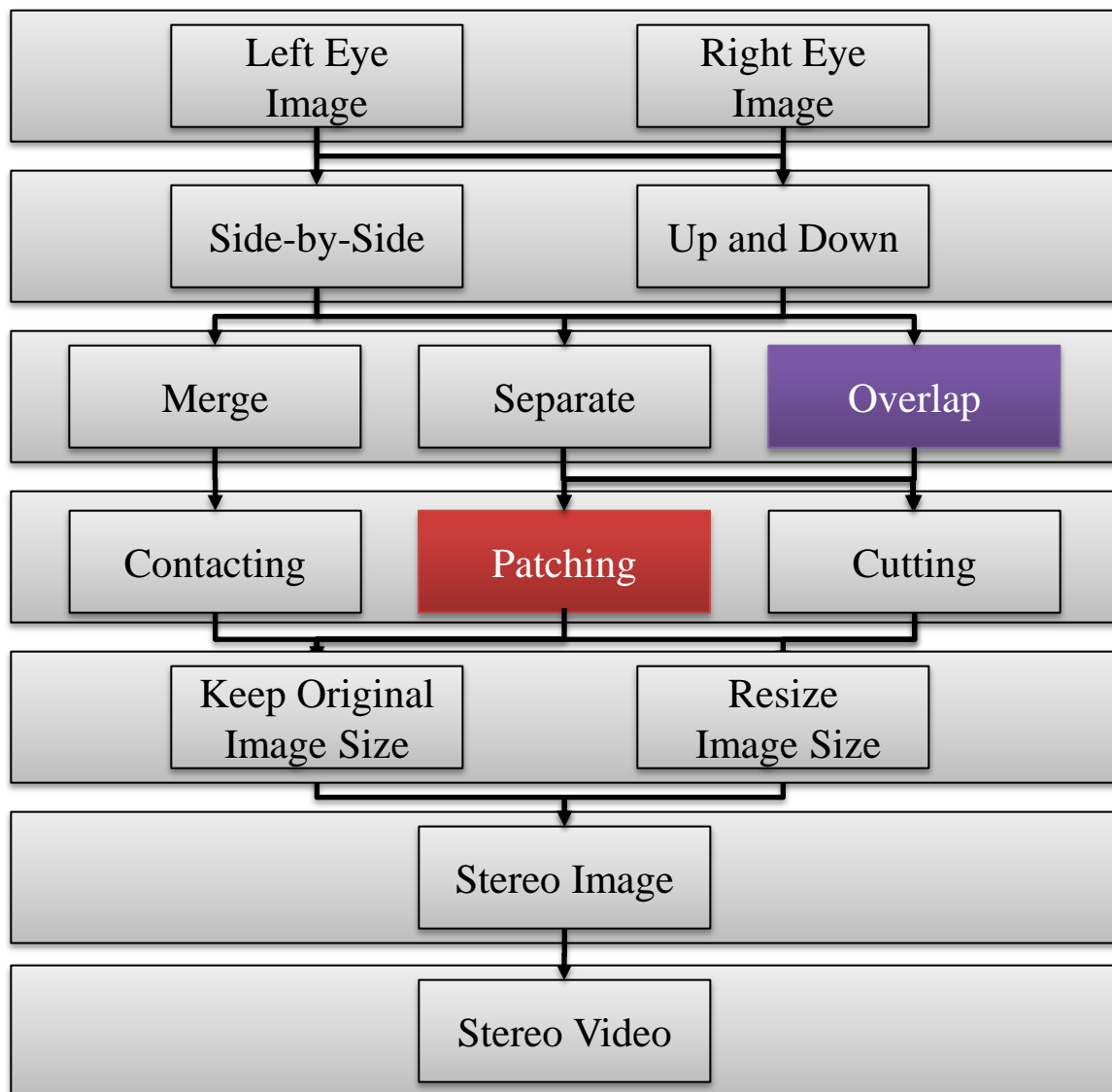
3 Stitch Method

4 Parallax Adjustment

5 Image Size Adjustment

6 Output Stereo Image

7 Output Stereo Video



[Overlap] Patching



Ex : Left Image (1920x1080)



Ex : Right Image (1920x1080)



Ex : SideBySide Overlap Patching 200 (4240x1080)

Stereo Video Clips Production and Method

1 Original Image

2 Stereo Format

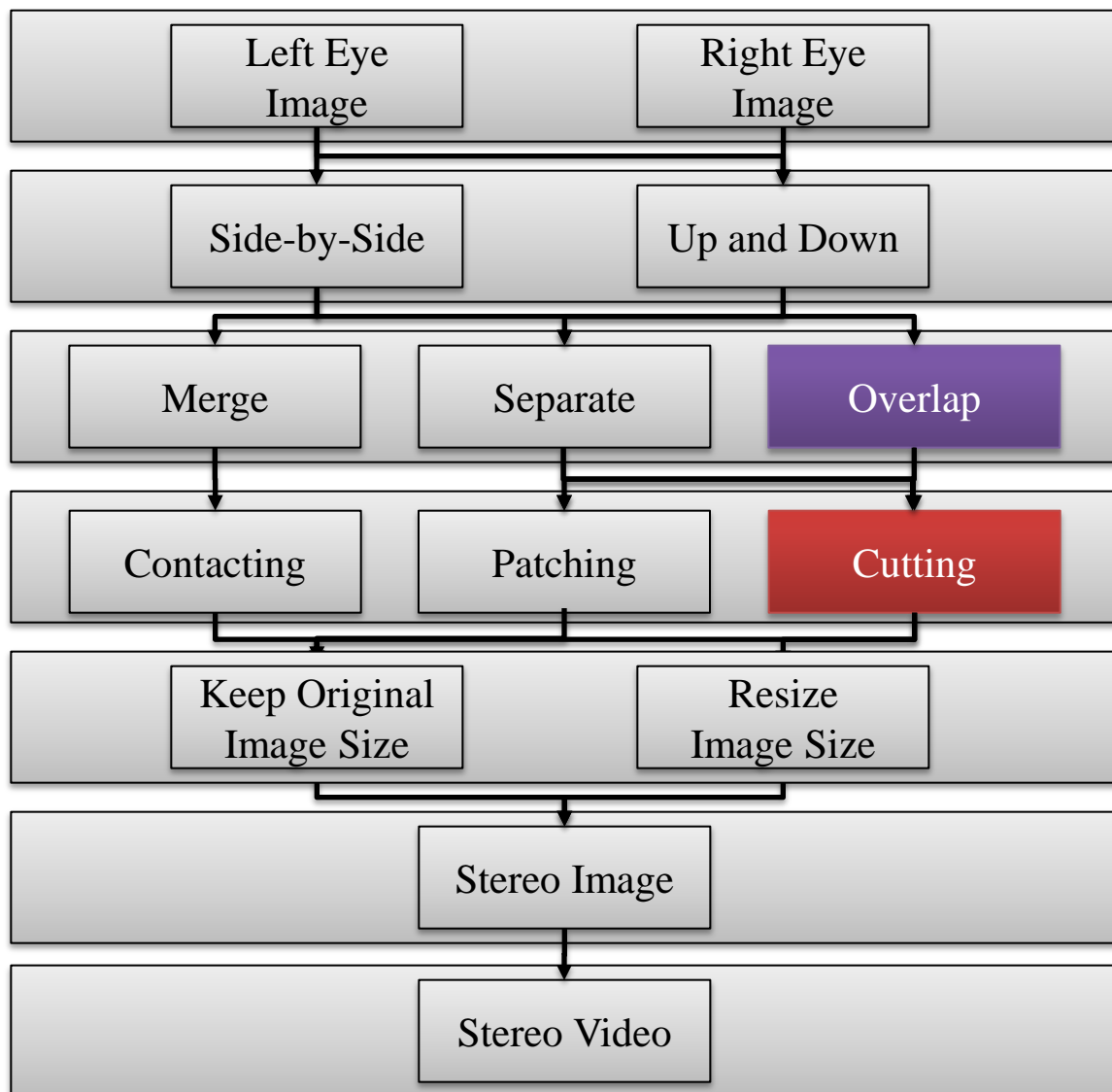
3 Stitch Method

4 Parallax Adjustment

5 Image Size Adjustment

6 Output Stereo Image

7 Output Stereo Video



[Overlap] Cutting



Ex : Left Image (1920x1080)

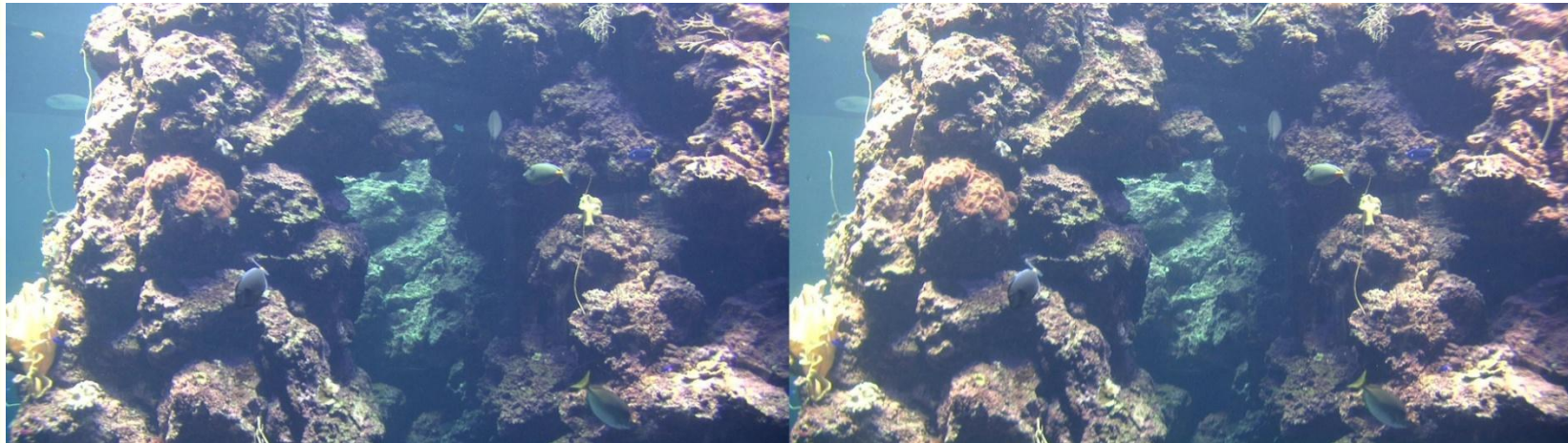


Ex : Right Image (1920x1080)

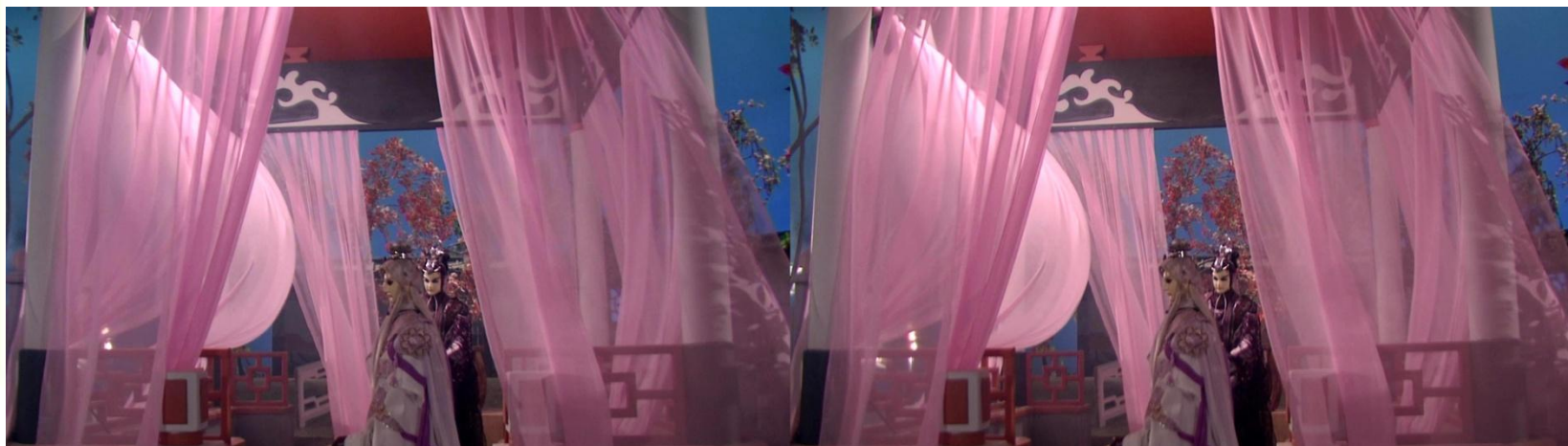


Ex : SideBySide Overlap Cutting 200 (3440x1080)

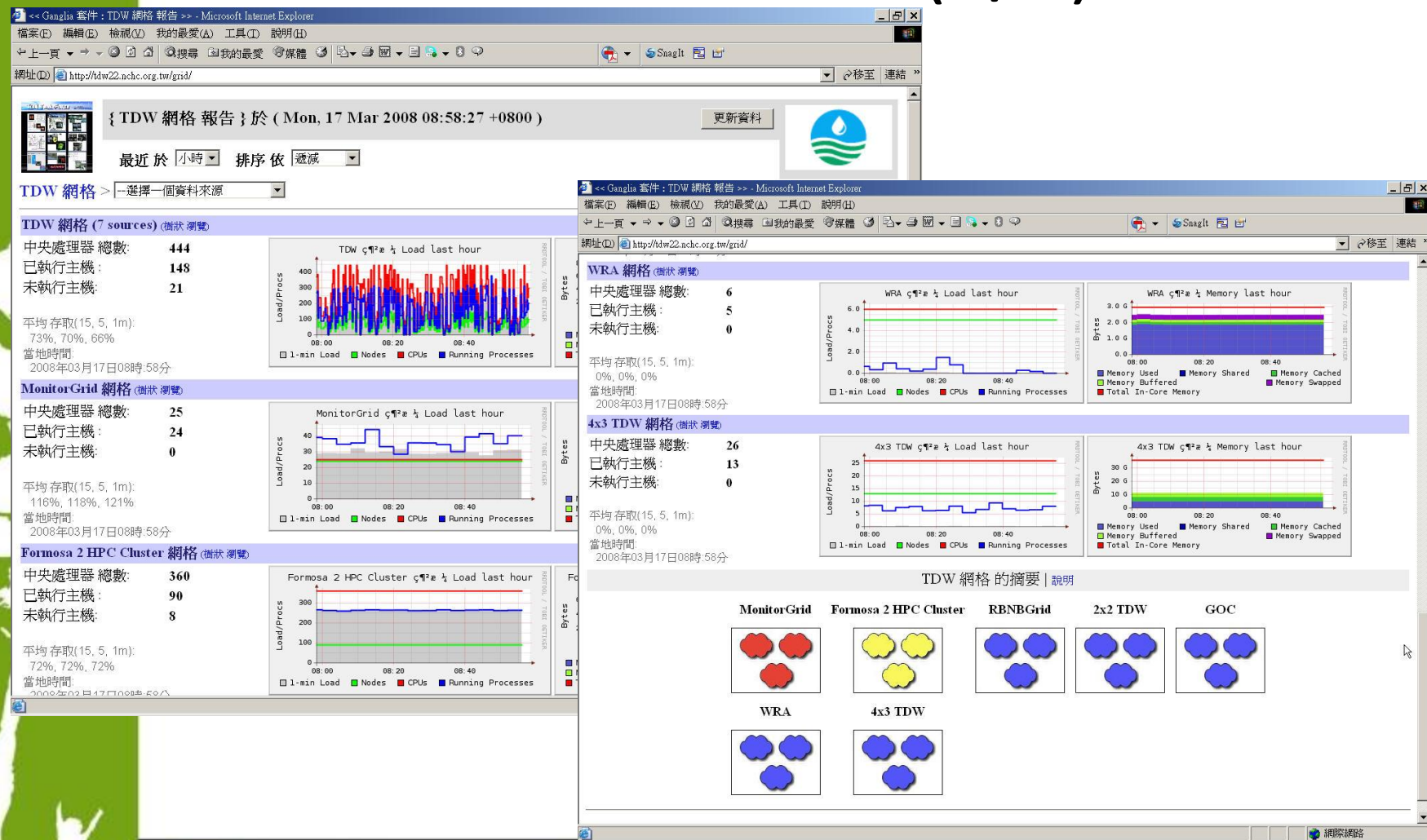
Snapshot of Stereo Video (1/2)



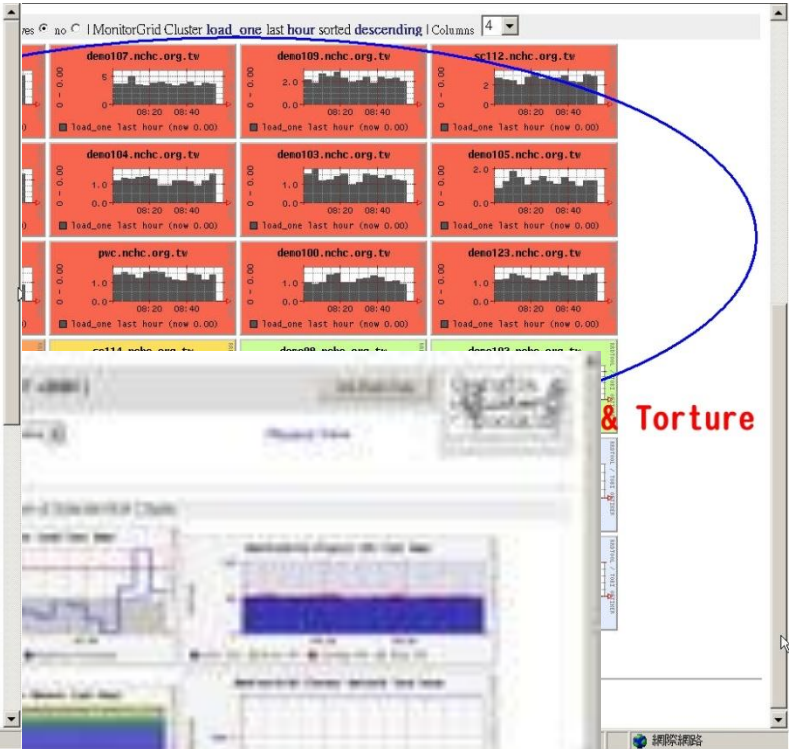
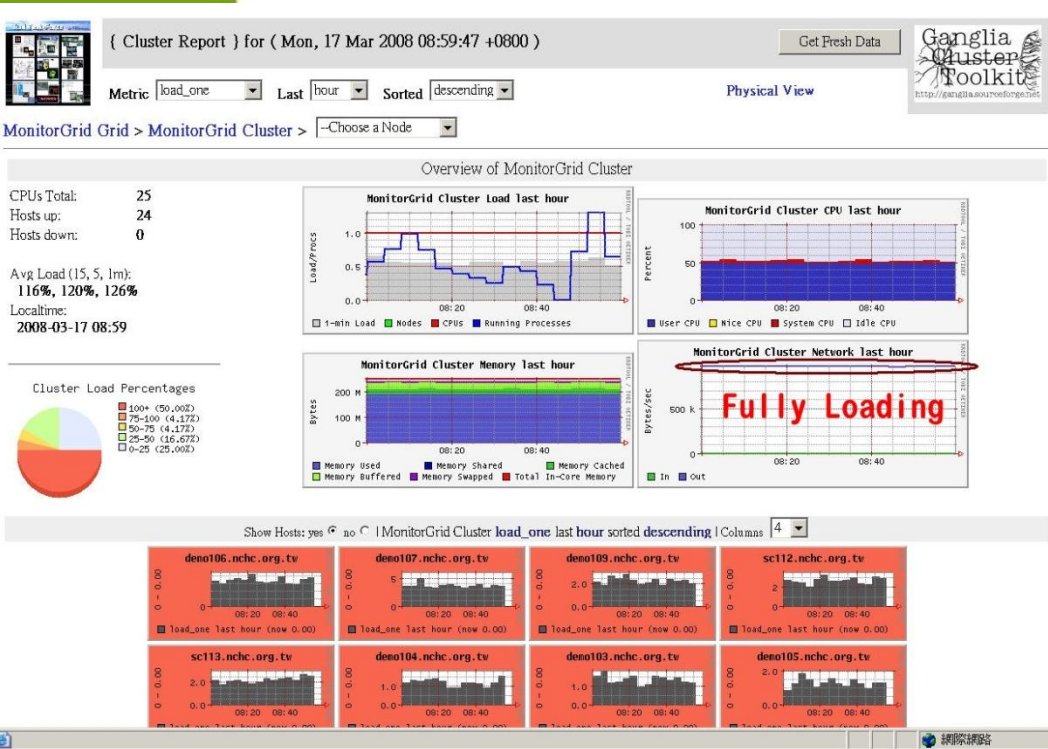
Snapshot of Stereo Video (2/2)



Ganglia Resource Monitoring of MonitorGrid (1/2)



Ganglia Resource Monitoring of MonitorGrid (2/2)



& Torture

Conclusions

- Computing model could be easy scaling up both of the historical clips and stereo video production with the distributed job submitting and scheduling.
- Users could be easy to get the best stereo effect shown in different presentation device by “parallax adjustment”.



<http://ecocam.nchc.org.tw/>

<http://ecohtd.nchc.org.tw/>

<http://ecocam.nchc.org.tw/tdw>

<http://ecosite.nchc.org.tw/>

Thank You !!