



무선으로 두 PC간의 모니터 확장을 지원하는 프로그램

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1 개발
동기

2 개발
내용



3 시 연
Q&A

1 개발
동기

2 개발
내용

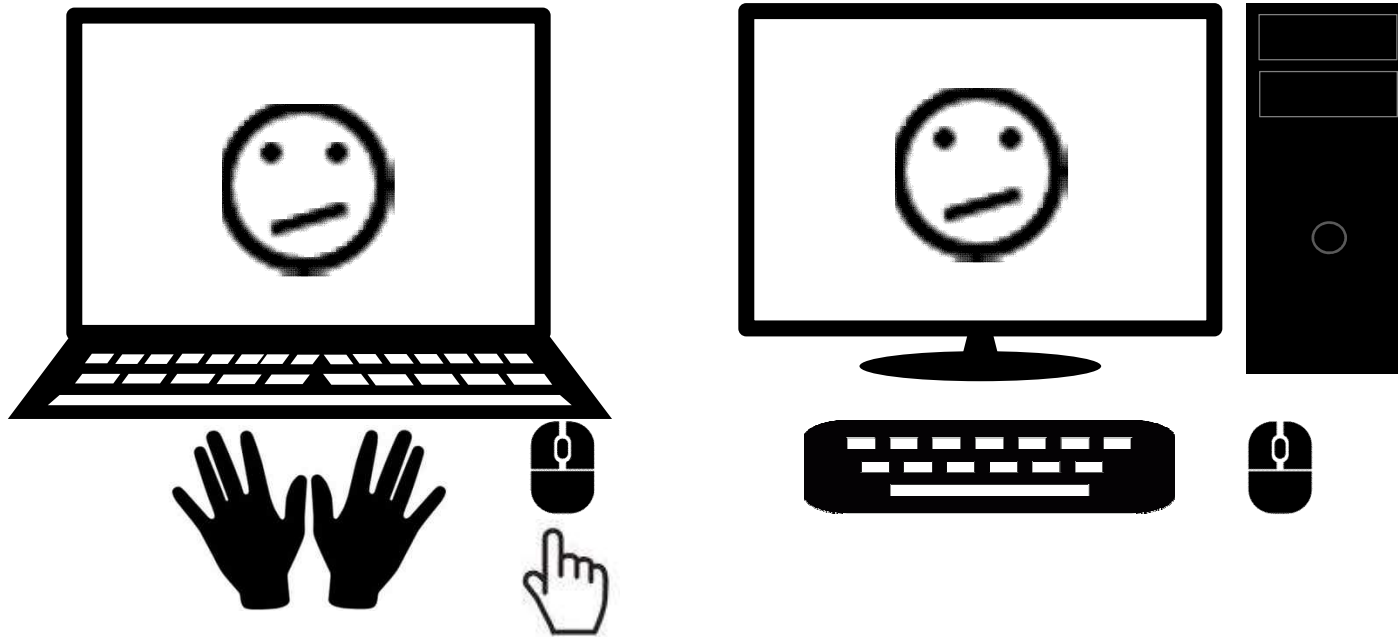


3 시 연
Q&A

MOTIVE FOR DEVELOPMENT

1

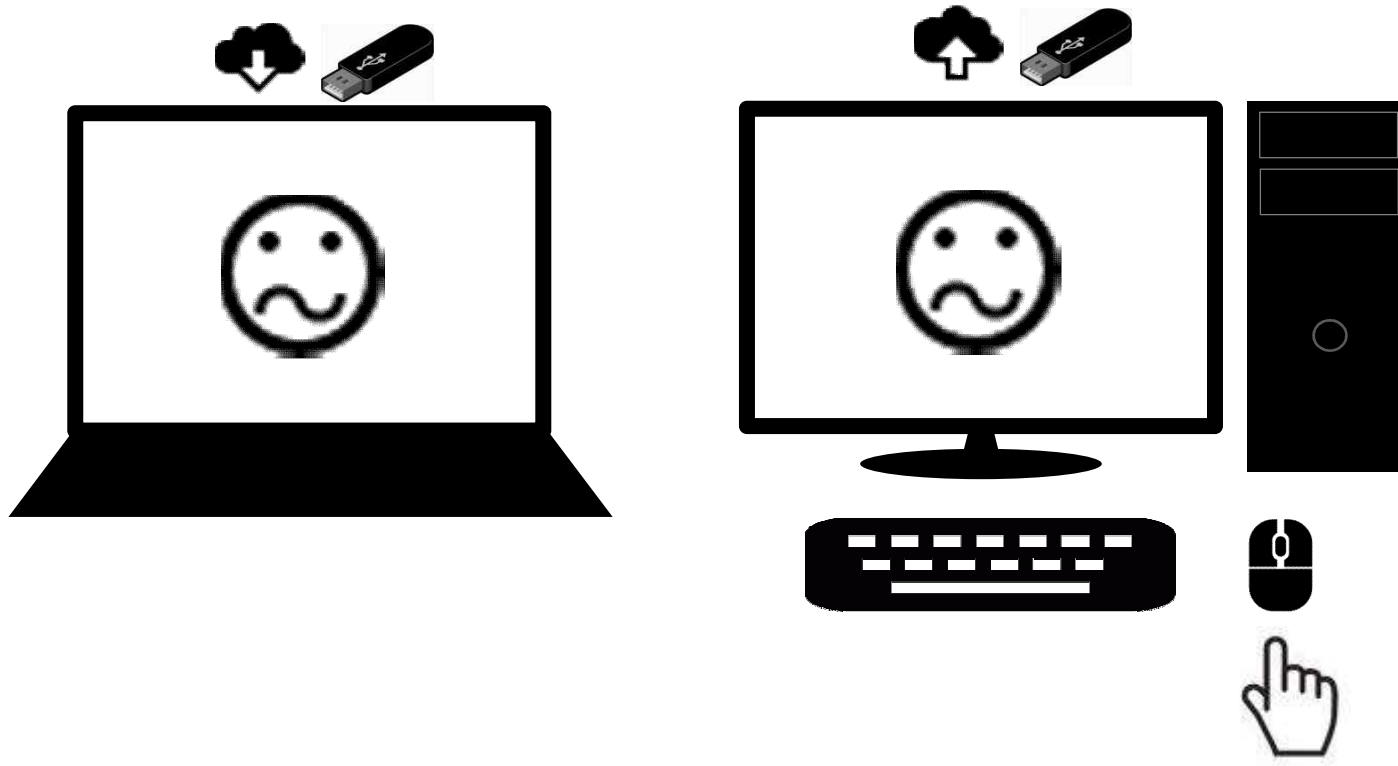
개발
동기



MOTIVE FOR DEVELOPMENT

1

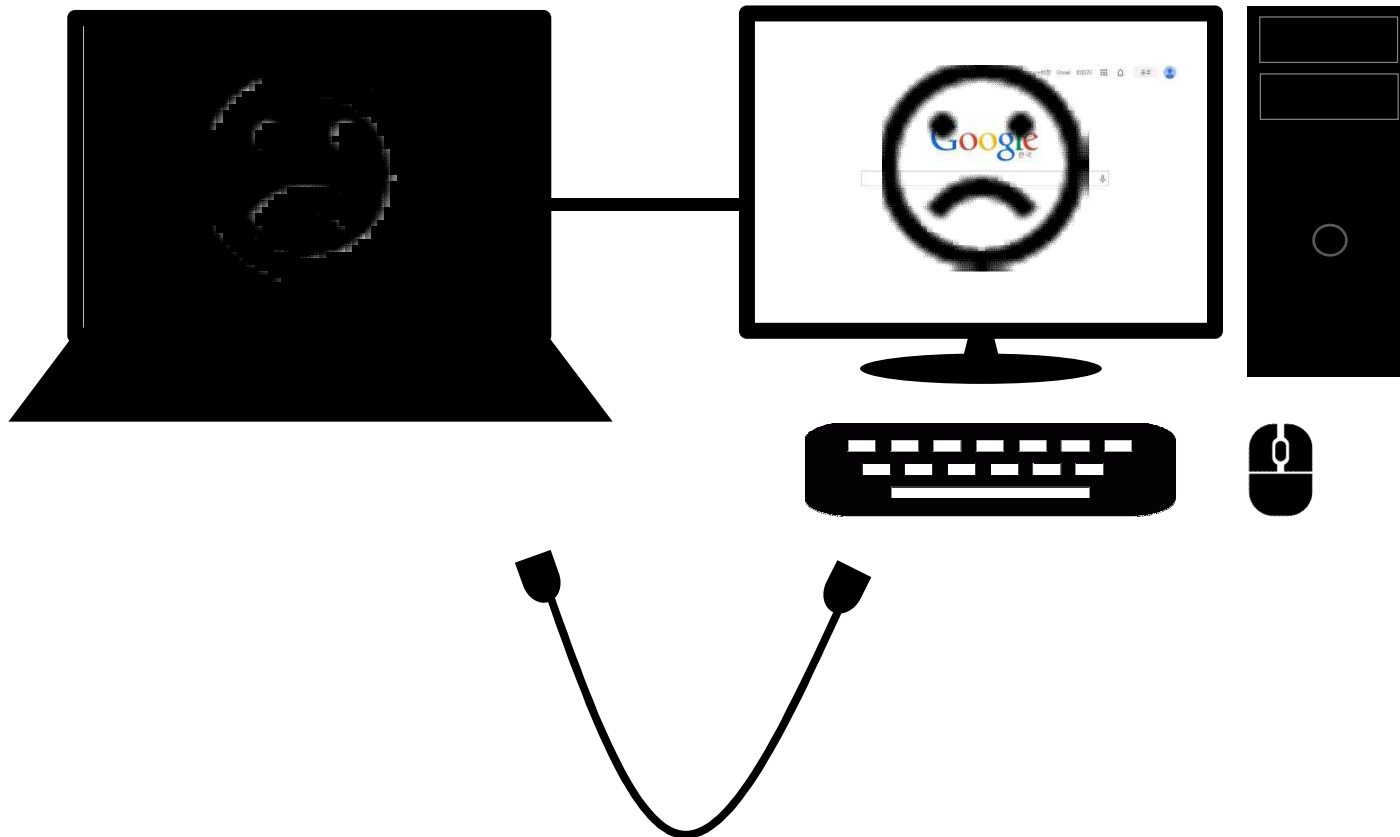
개발
동기



MOTIVE FOR DEVELOPMENT

1

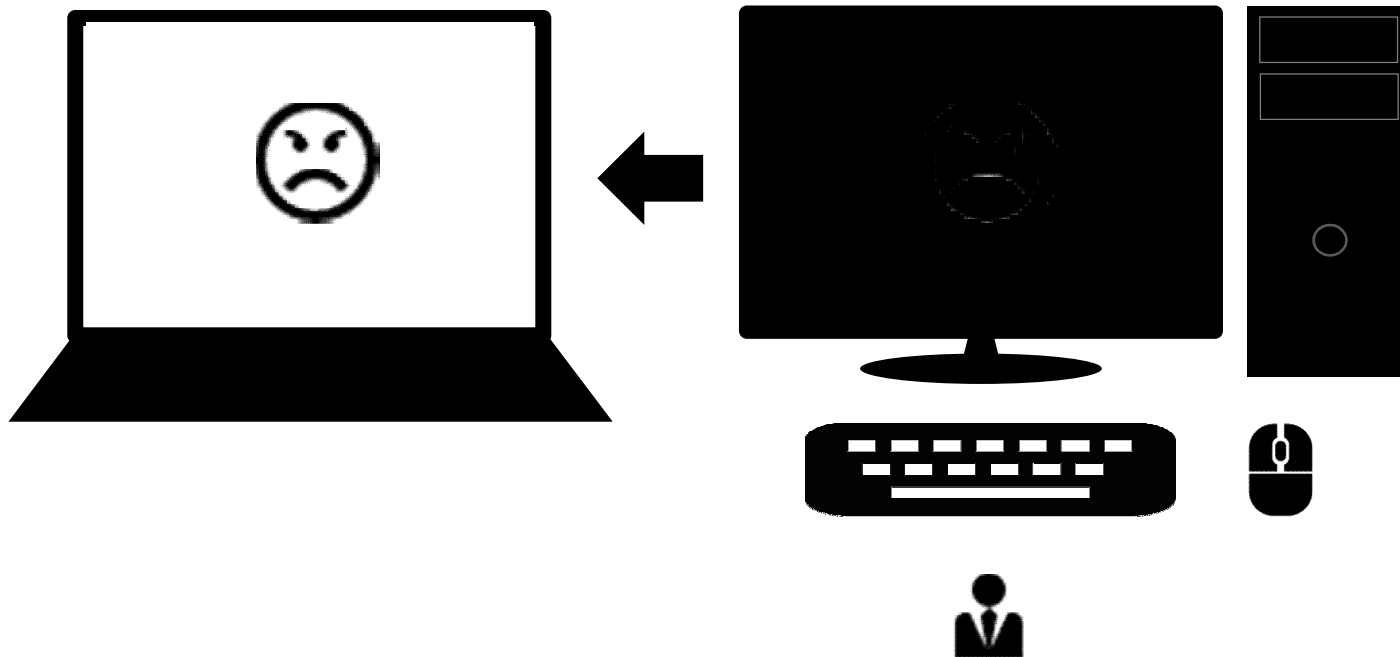
개발
동기



MOTIVE FOR DEVELOPMENT

1

개발
동기

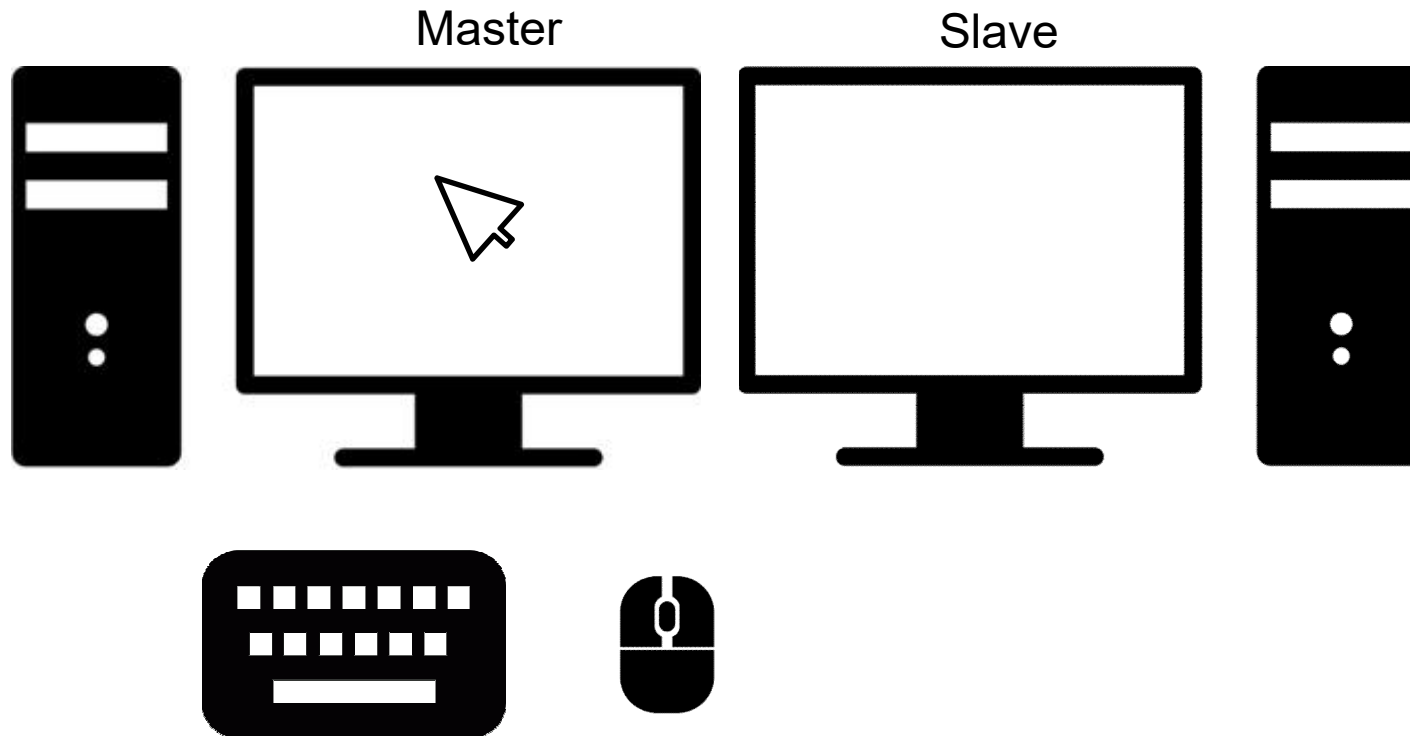


PROJECT GOAL

KEYBOARD, MOUSE SHARE

1

개 발
동 기

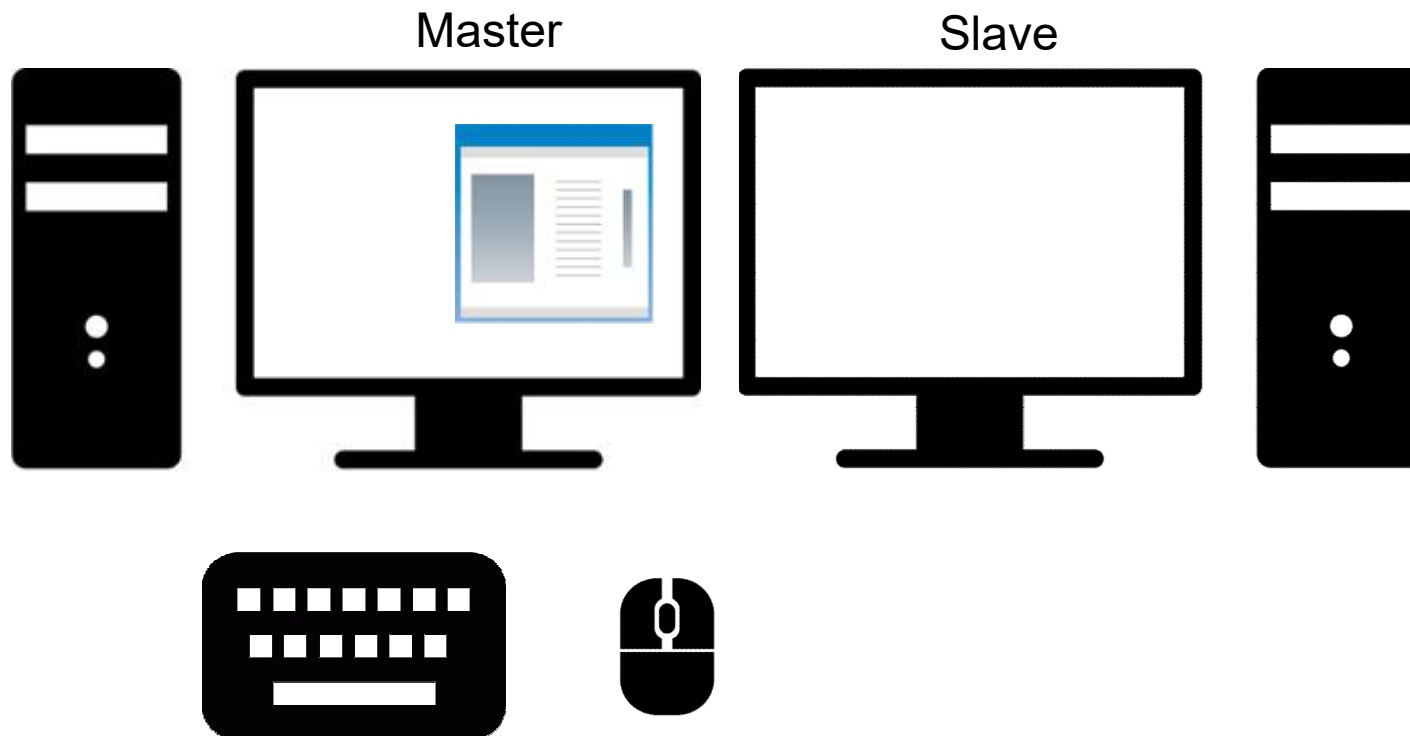


PROJECT GOAL

PROGRAM EXTENSION

1

개발
동기

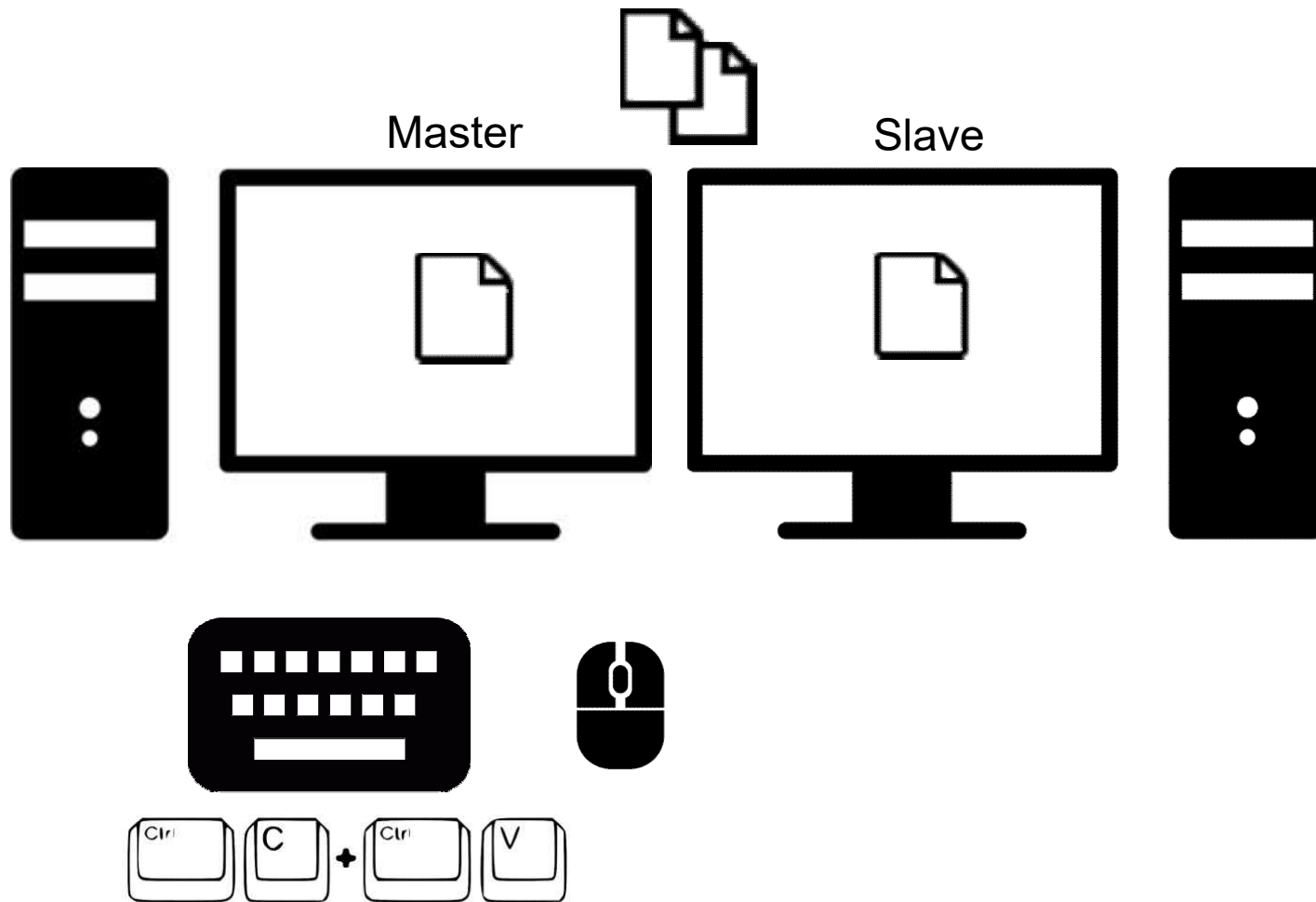


PROJECT GOAL

CLIPBOARD SHARE

1

개발기
개동기



1 개발
동기

2 개발
내용

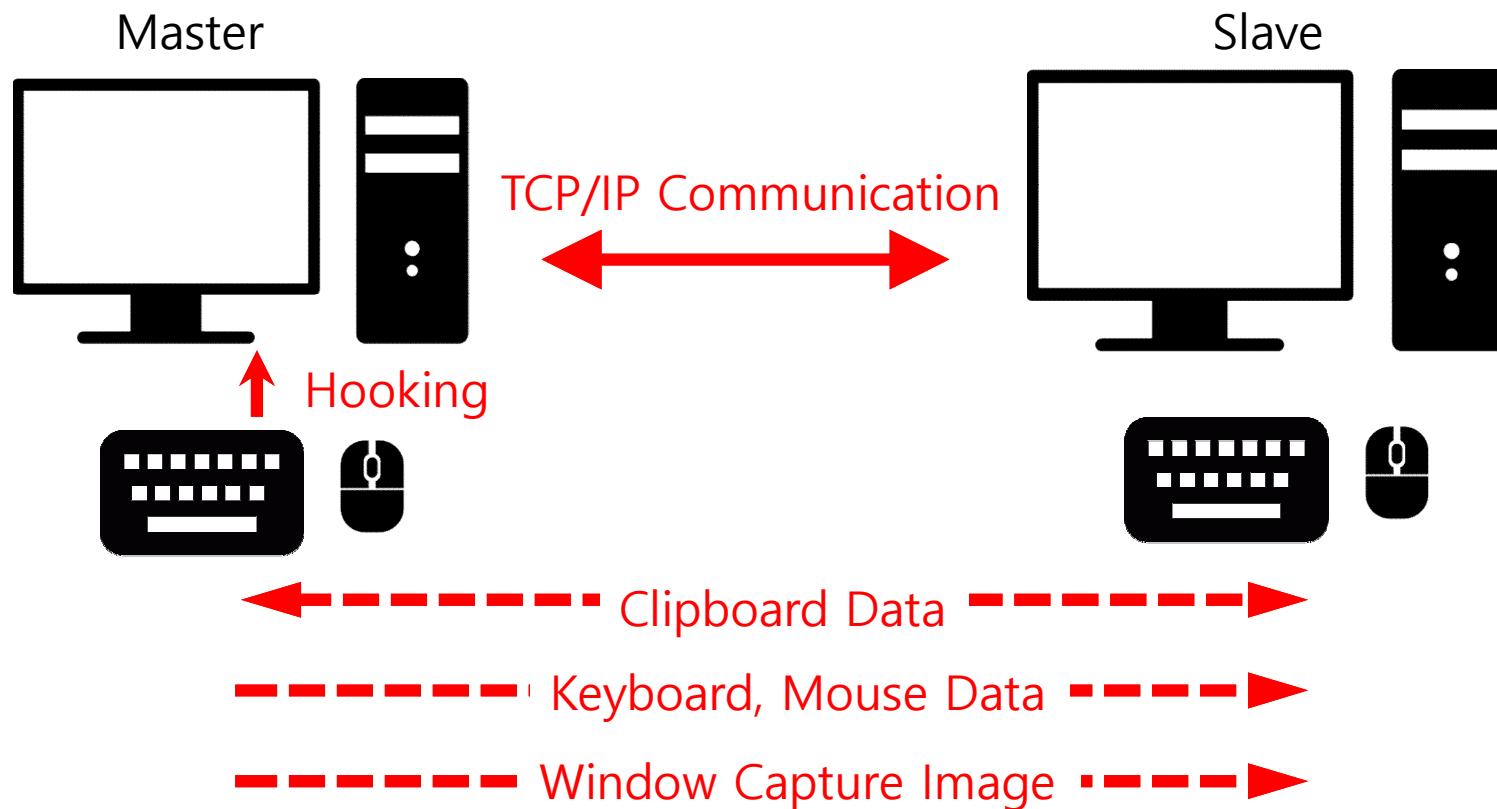


3 시 연
Q&A

SYSTEM ARCHITECTURE

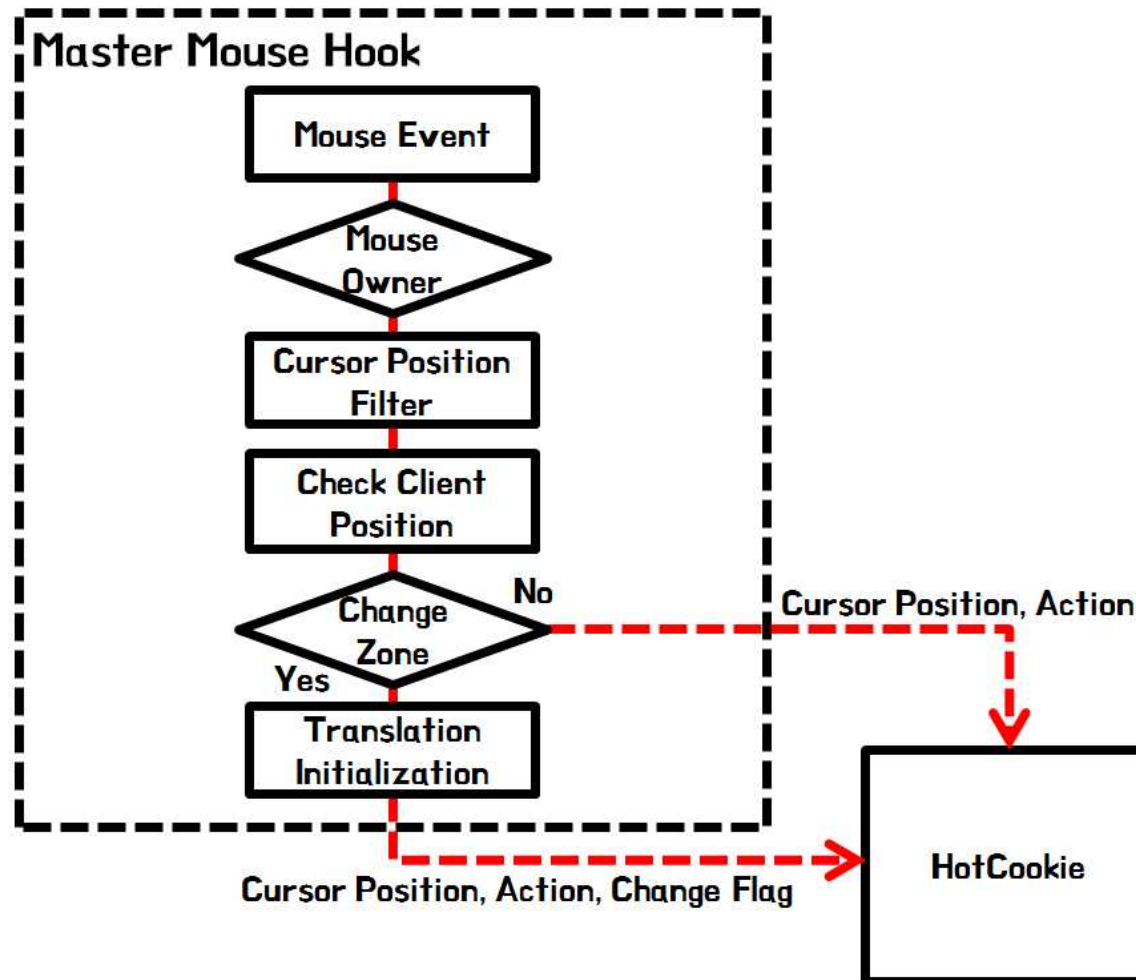
2

개
내
용



Mouse Share

1. Mouse Share Processing

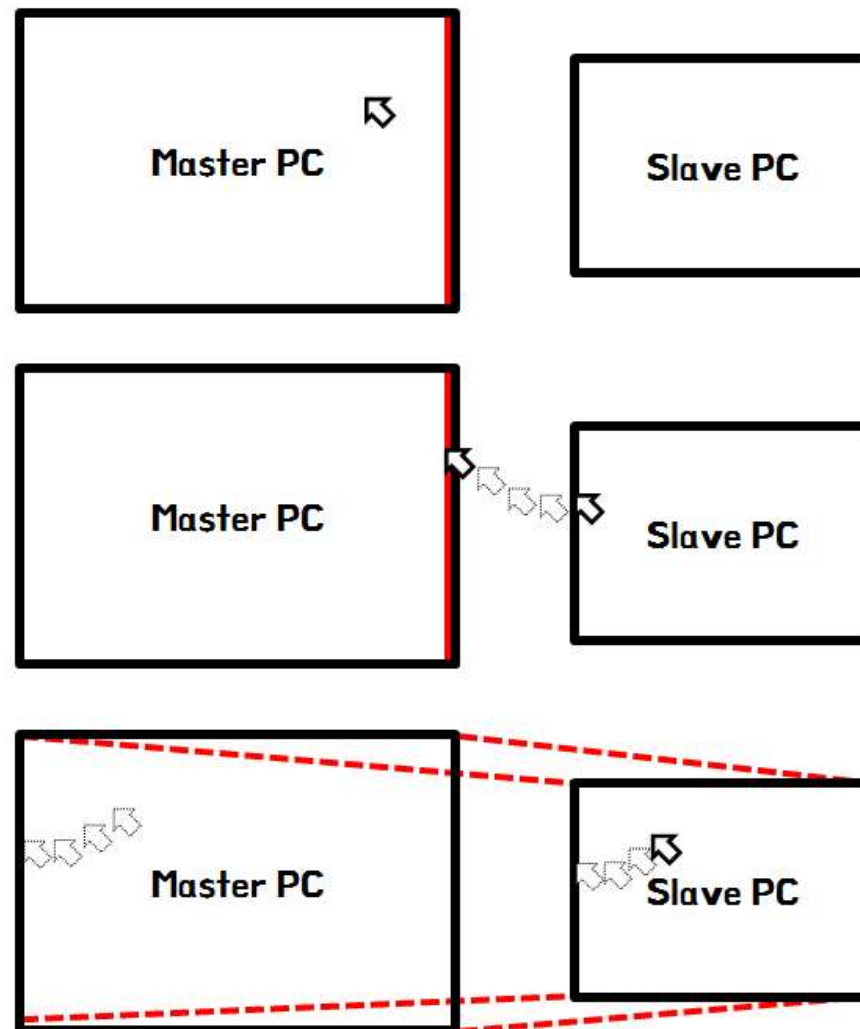


2

개 발
내 용

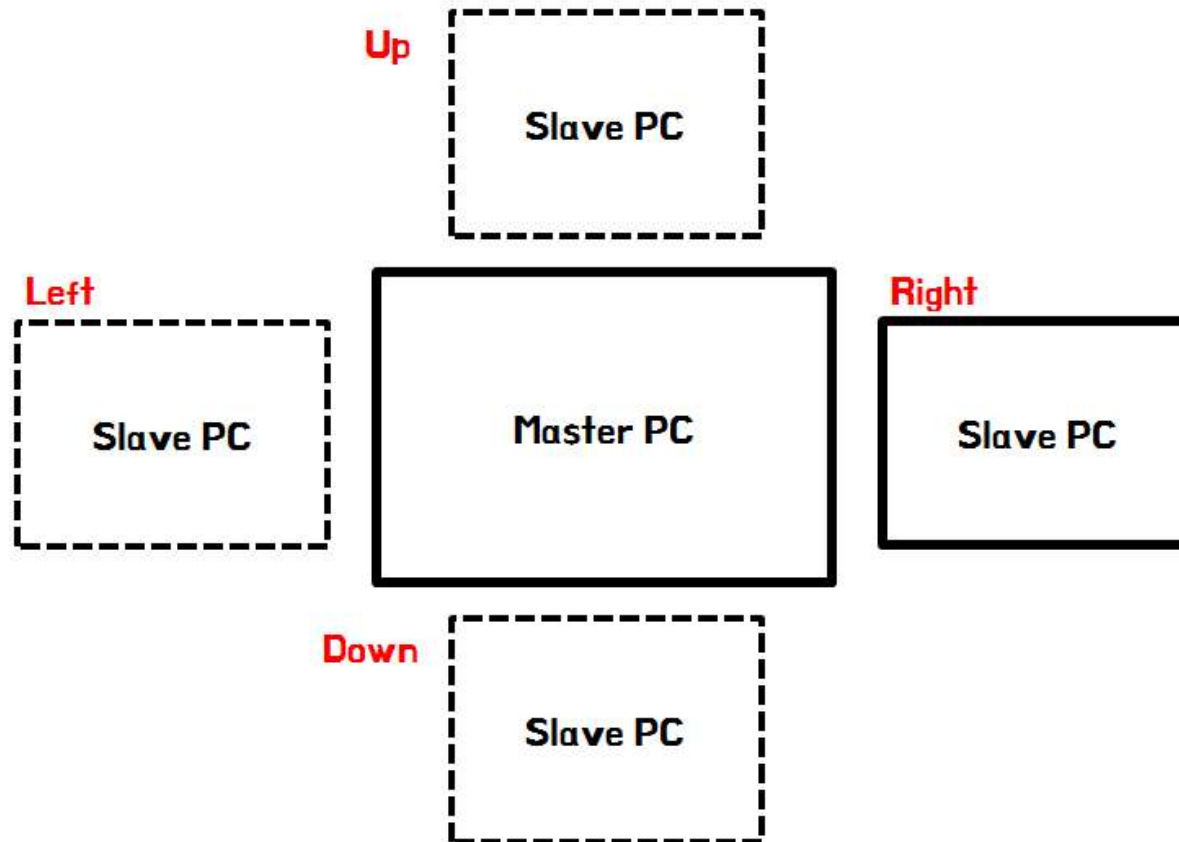
Mouse Share

2. Mouse Sharing



Mouse Share

3. Support(1) - Slave Position

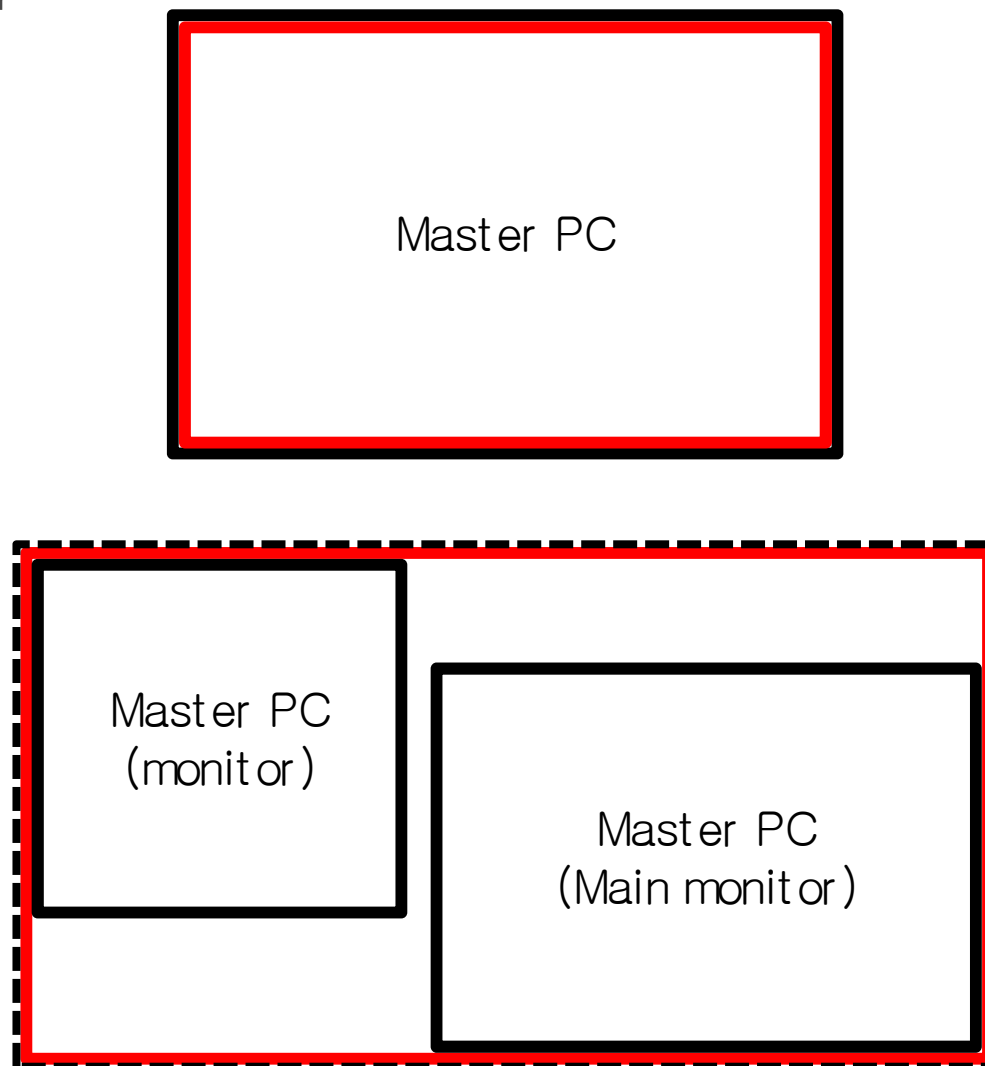


2

개 발
내 용

Mouse Share

3. Support(2) - dual monitor

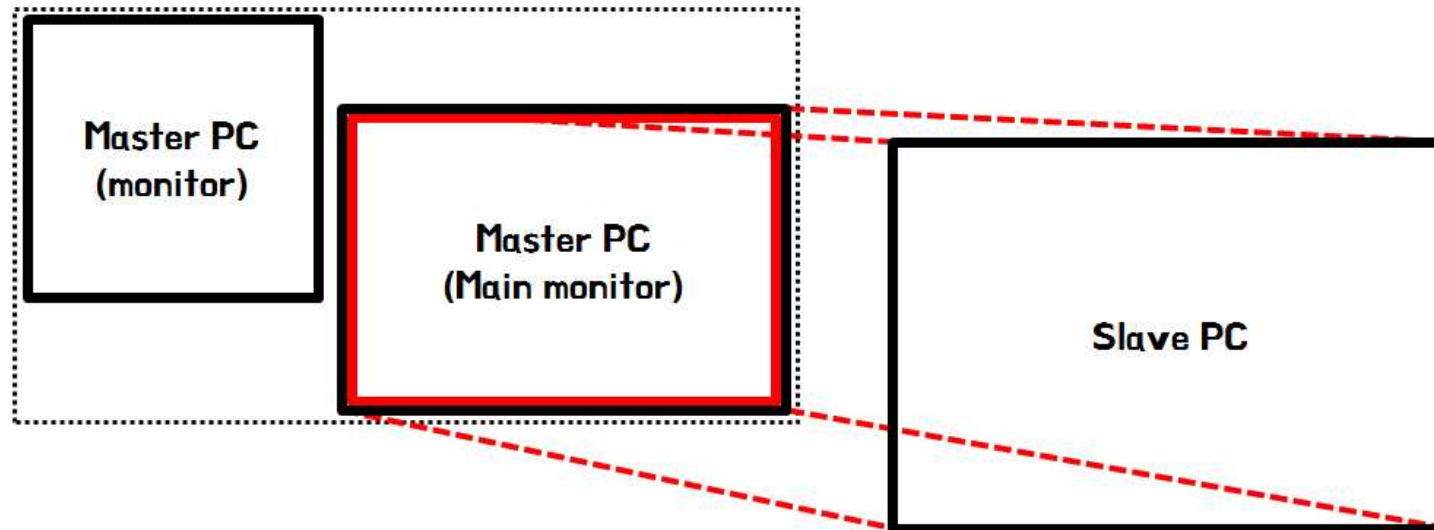


Mouse Share

3. Support(2) - dual monitor

2

개 발
내 용



Keyboard Share

1. Keyboard share Processing

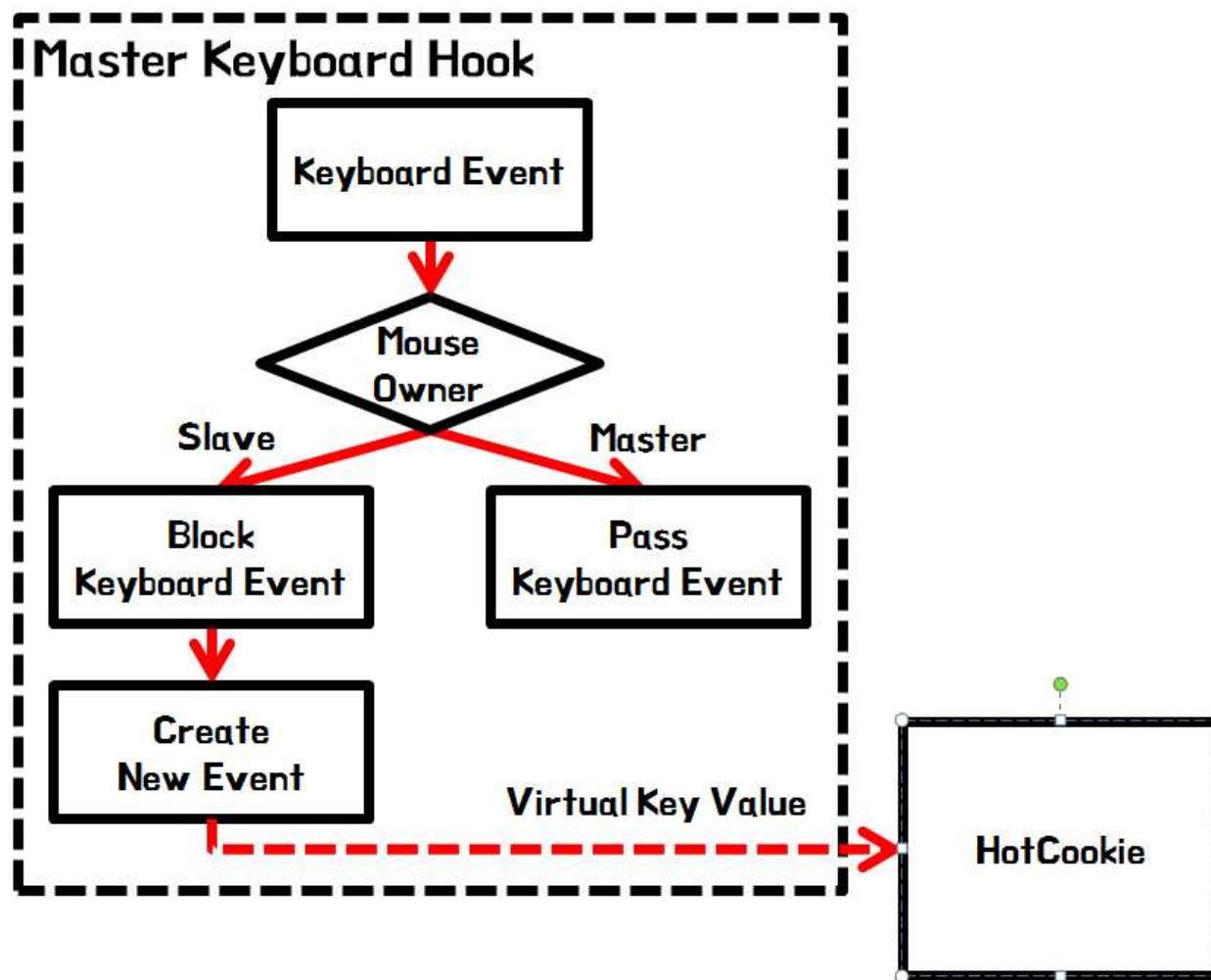
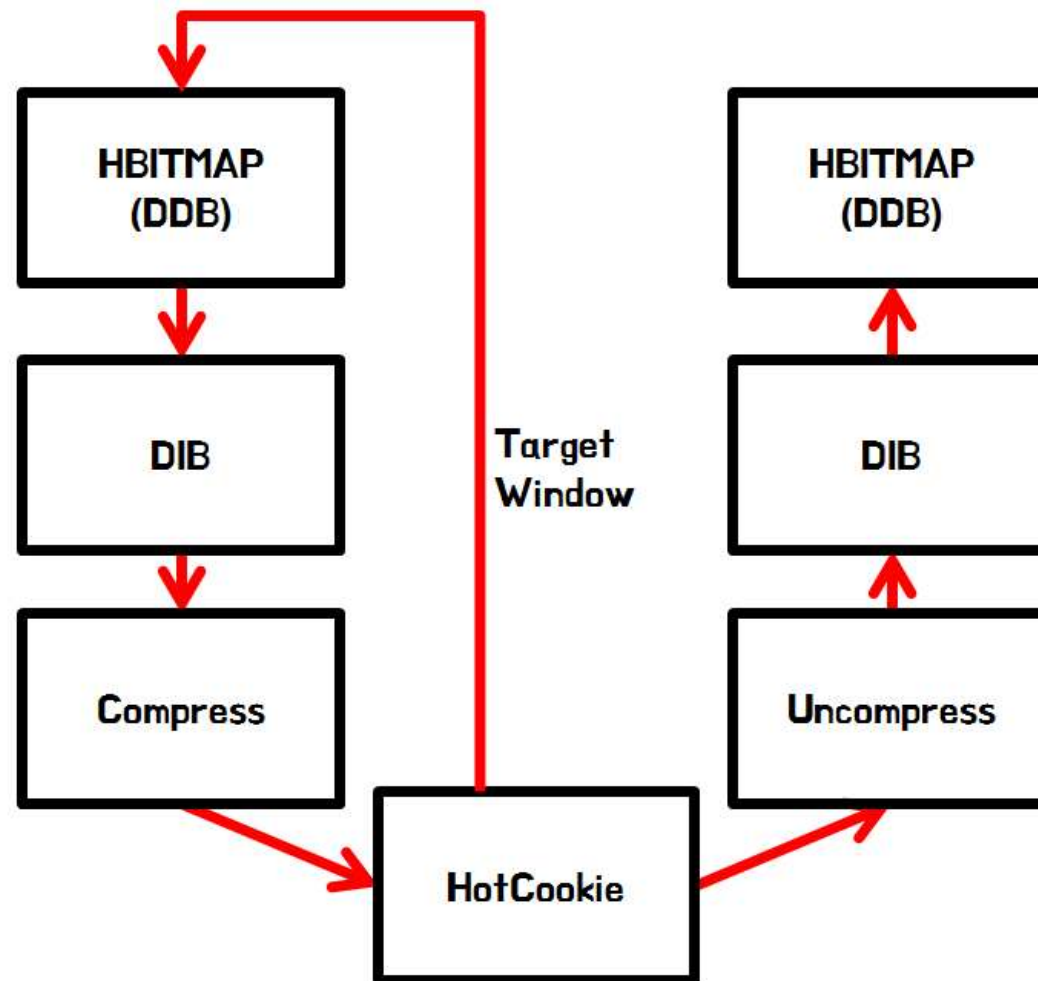


Image Compress

1. Image Compress/Uncompress Processing



2

개 발
내 용

Image Compress

2. Image Compressing Rate

2

개 발
내 용

분류	원본크기	압축 이미지	압축률
메모장	1,007,694	44,124	56.22%
크롬(이미지)	1,044,282	733,459	29.67%
IE(이미지)	854,223	422,011	50.60%
비주얼 스튜디오	1,681,998	121,523	92.78%
한 글	2,895,254	86,054	97.03%
훈민 정음	1,982,294	147,122	92.51%
카카오톡	619,094	38,175	93.86%
계산기	378,894	30,991	91.81%

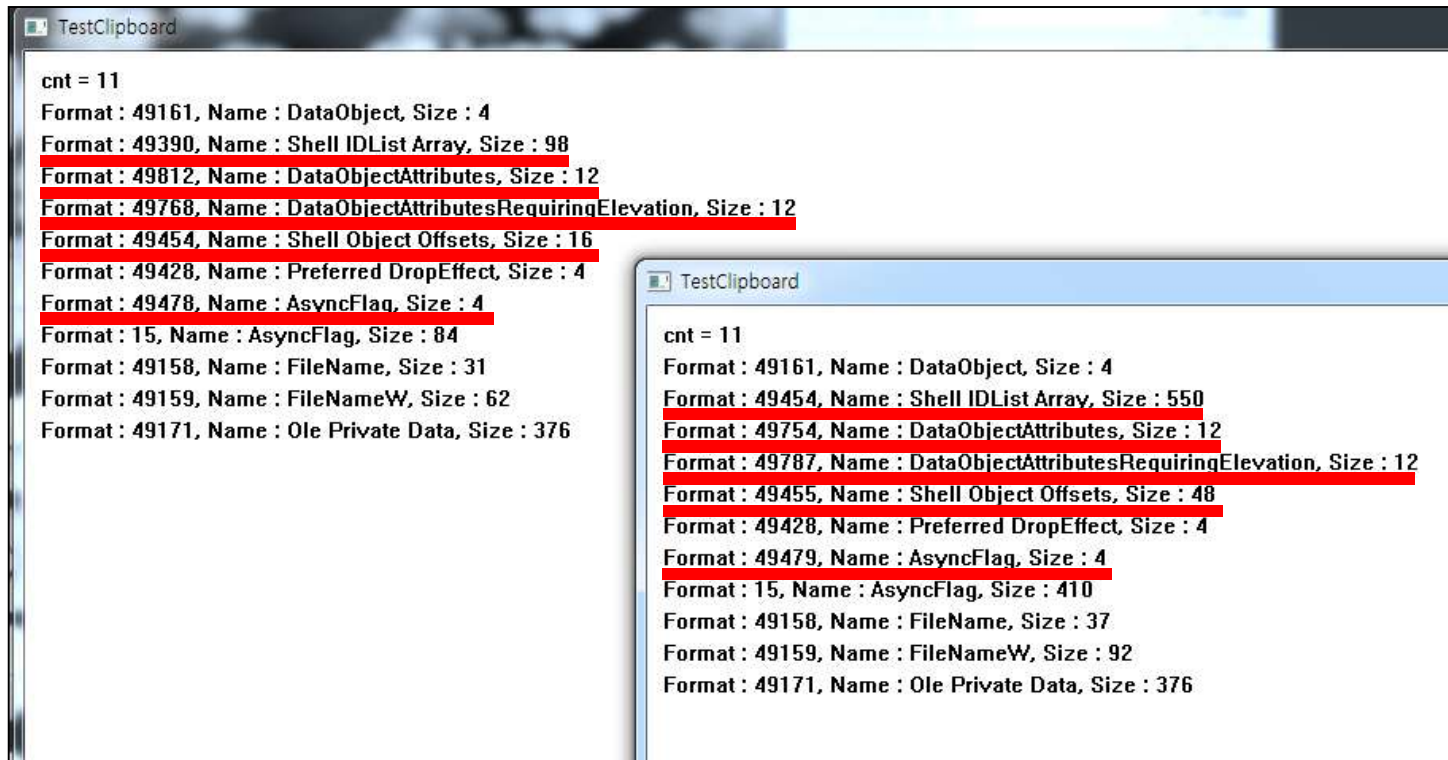
평균 압축률
75%

Clipboard Share

1. Limitation of Clipboard Sharing

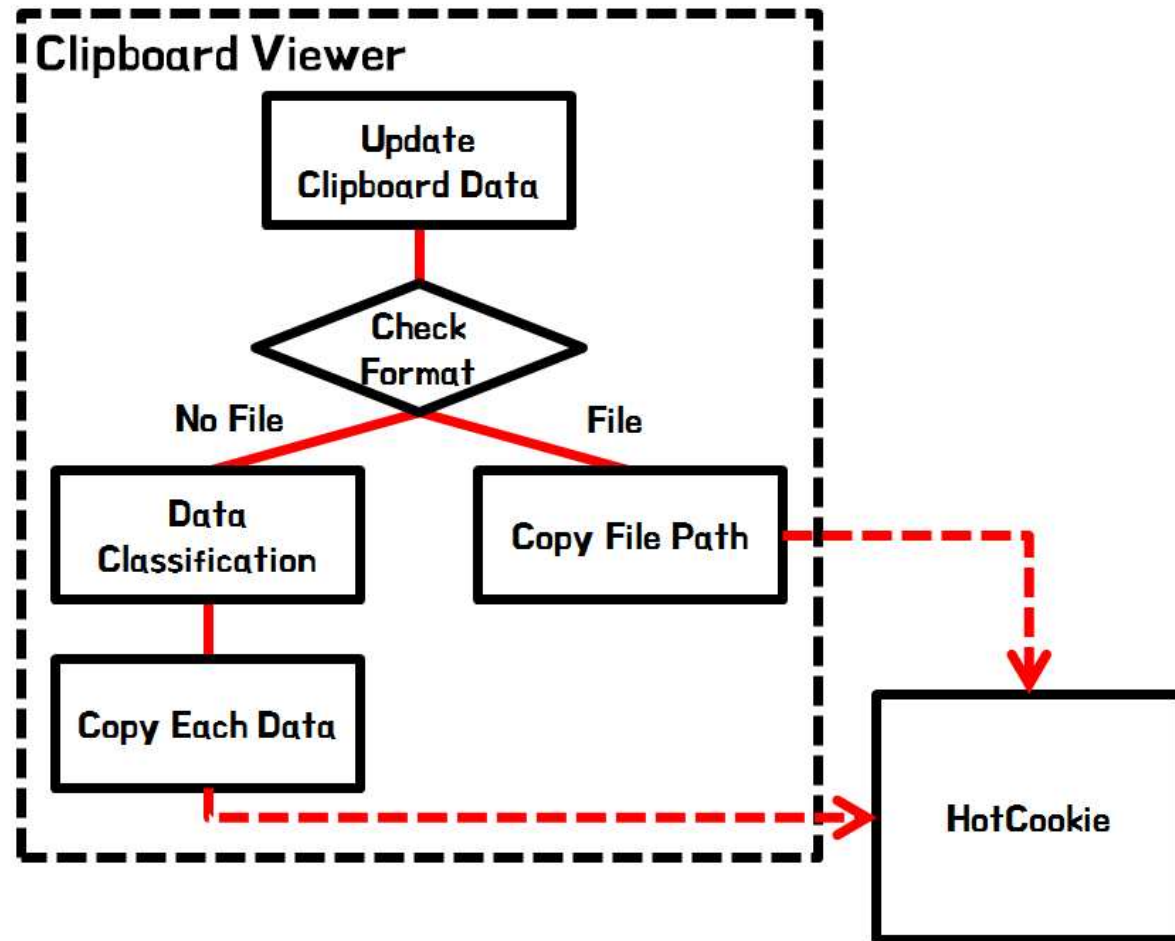
2

개
내
발
용



Clipboard Share

2. Clipboard Viewer



2

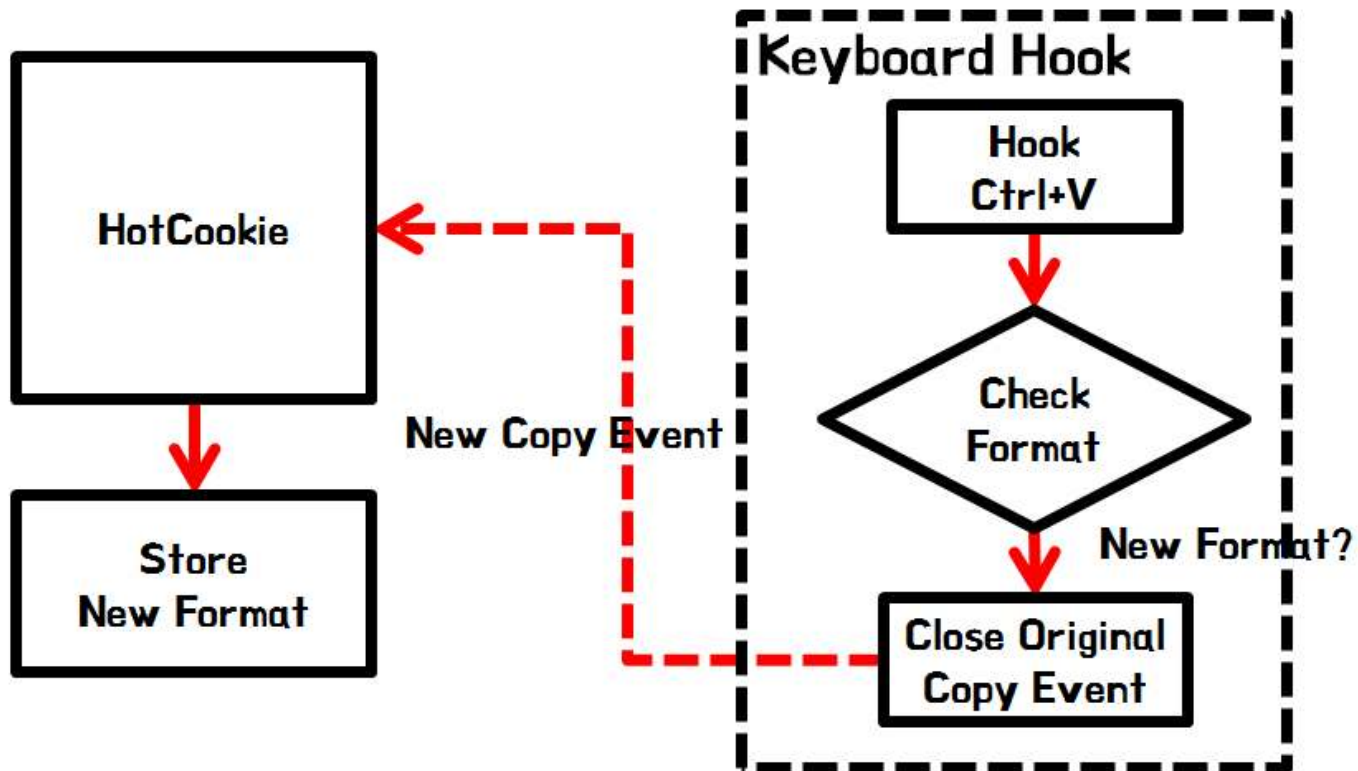
개 발
내 용

Clipboard Share

3. Clipboard File Sharing

2

개
내
용

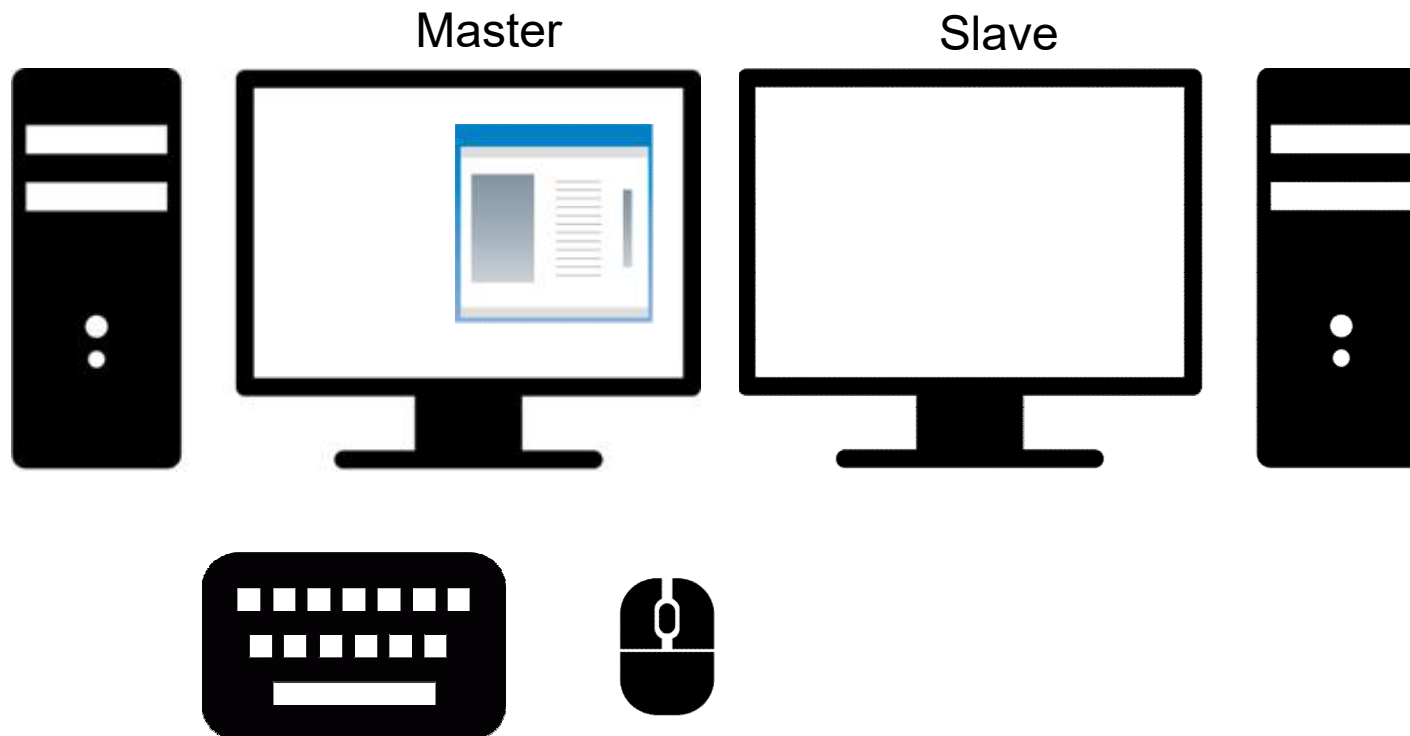


PROGRAM EXTENSION

1. Window Image Capture

2

개
내
발
용



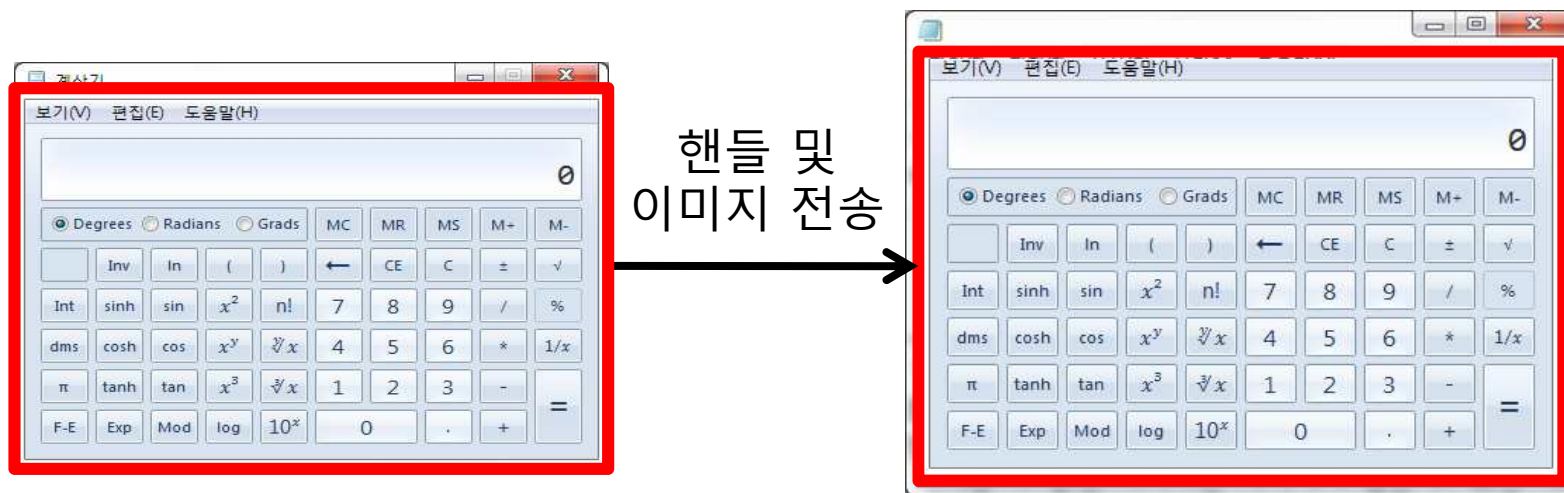
Window Drag 감지

PROGRAM EXTENSION

1. Window Image Capture

2

개
내
용



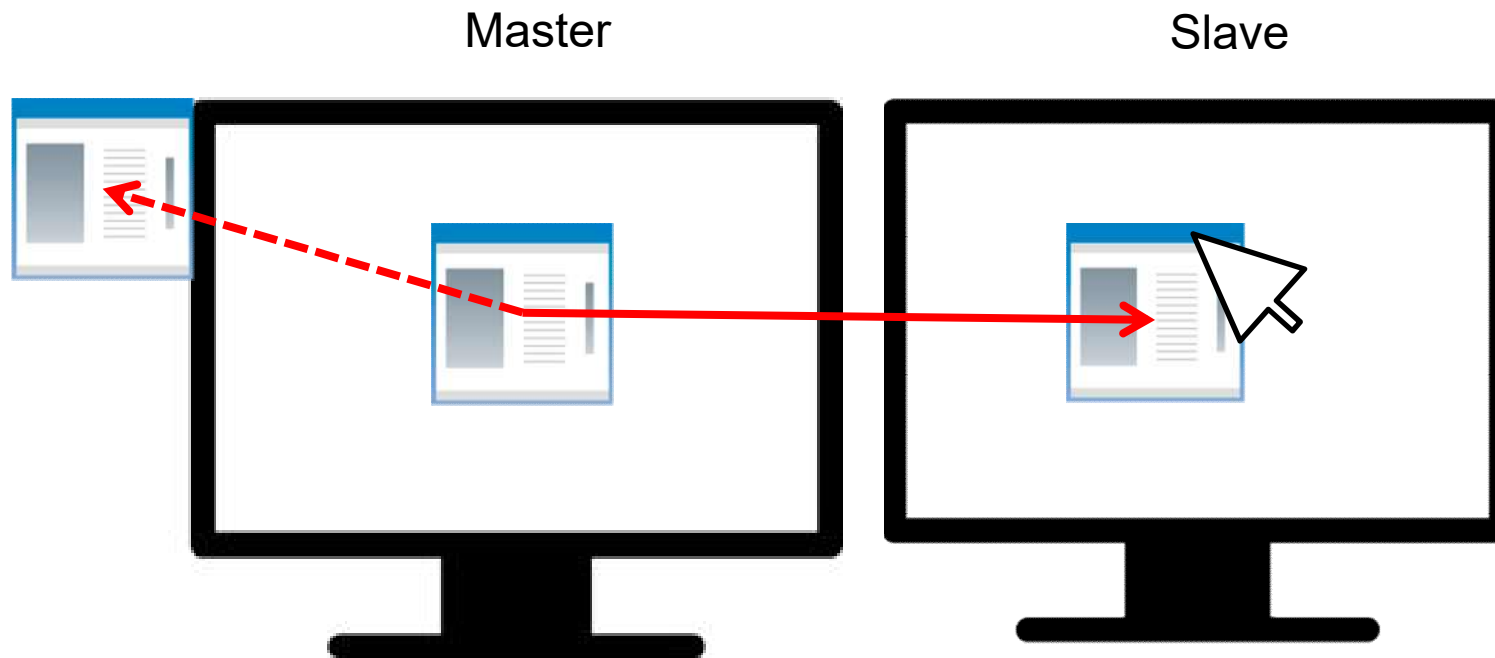
Client Area Capture By Window Handle

PROGRAM EXTENSION

1. Window Image Capture

2

개
내
발
용



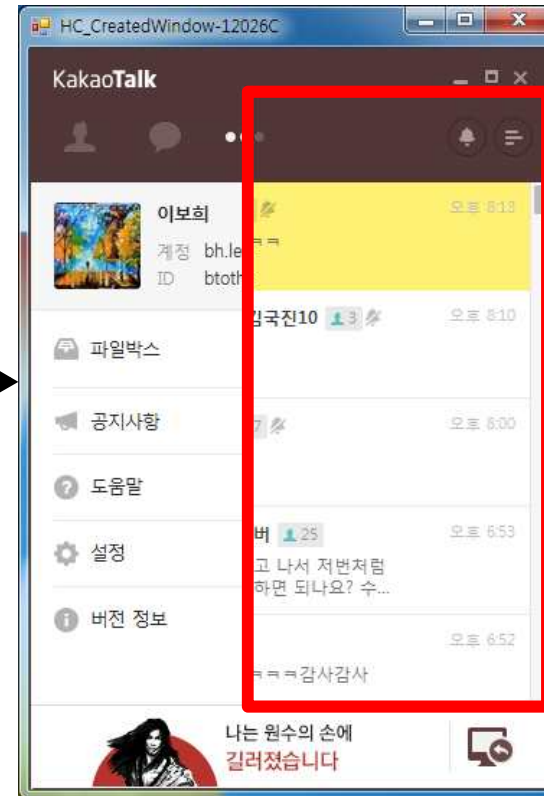
원본 윈도우를 모니터 밖 영역으로 옮김.

PROGRAM EXTENSION

1. Window Image Capture



캡처



Clipping 문제 발생.

2

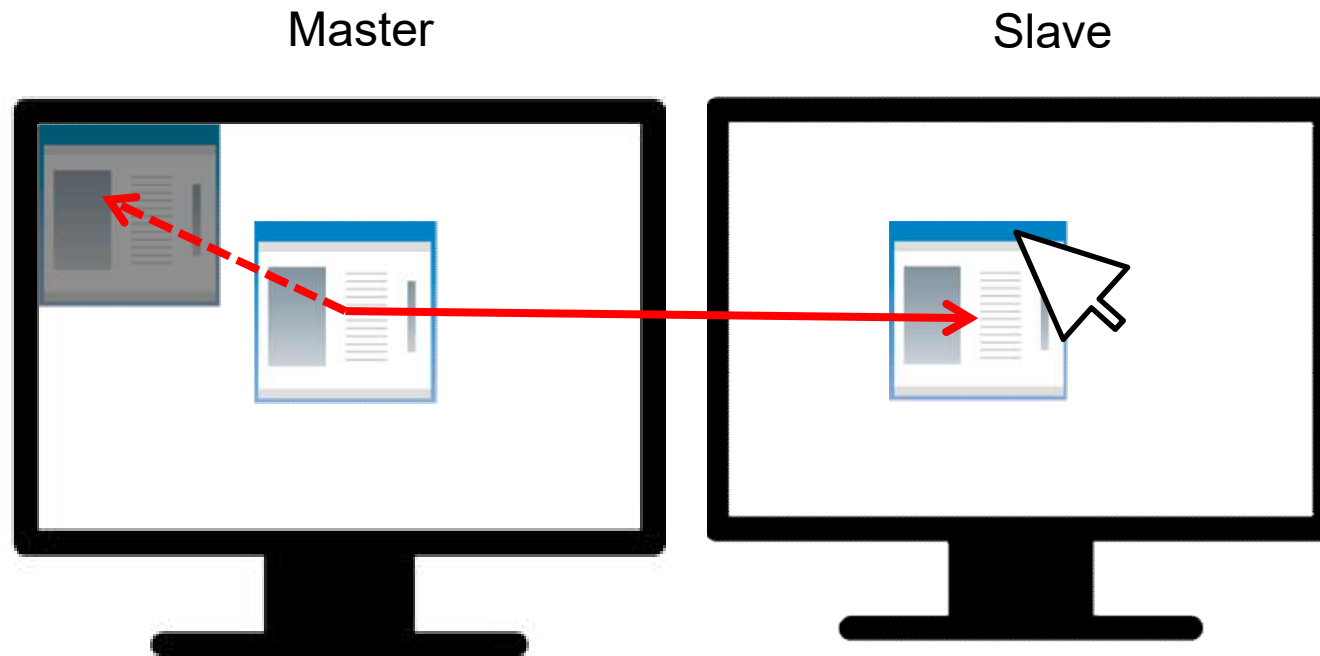
개 발
내 용

PROGRAM EXTENSION

1. Window Image Capture

2

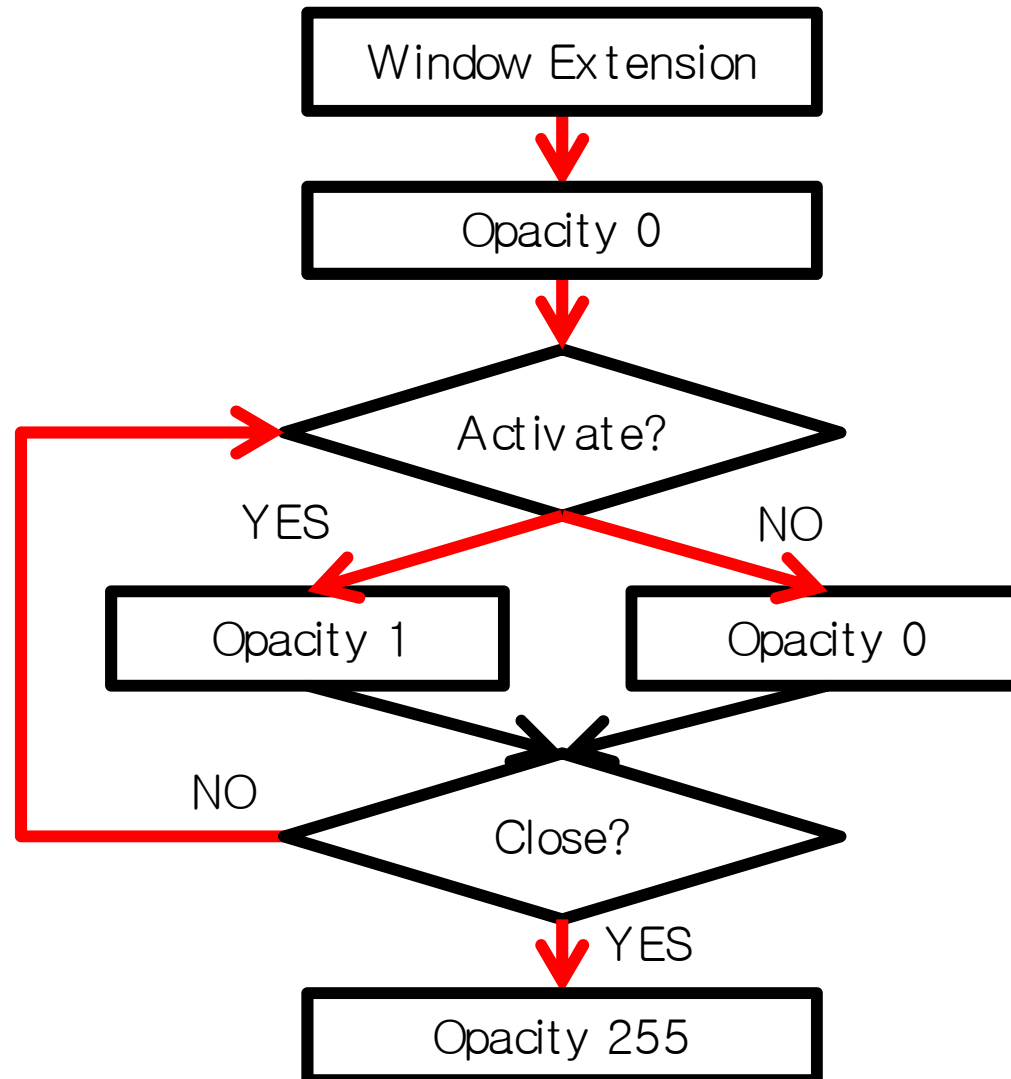
개 발
내 용



원본 윈도우를 모니터 안 영역으로 이동하고 투명하게 함.

PROGRAM EXTENSION

1. Window Image Capture



PROGRAM EXTENSION

2. Window Event Processing

2

개
내
용



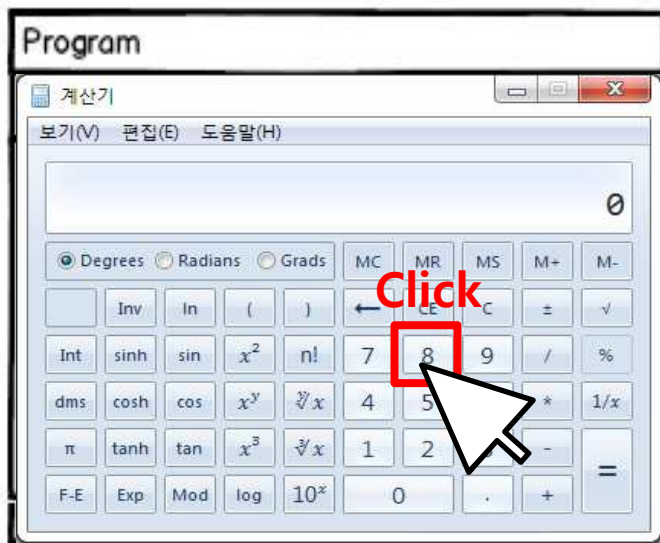
확장된 윈도우의 조작

PROGRAM EXTENSION

2. Window Event Processing

2

개
내
발
용



Mouse

- Local Hook 사용

Keyboard

- 확장 윈도우 자체
키보드 이벤트를 override

이벤트 감지

PROGRAM EXTENSION

2. Window Event Processing

2

개
내
발
용



TCP/ IP Socket

- Window Handle, Message, lParam, wParam 등 전송

slave

이벤트 전송

PROGRAM EXTENSION

2. Window Event Processing

2

개
내
용

Find Control Handle

- 전송된 핸들은 Root Window Handle
- 이벤트 정보에 따라 최하위 컨트롤 탐색



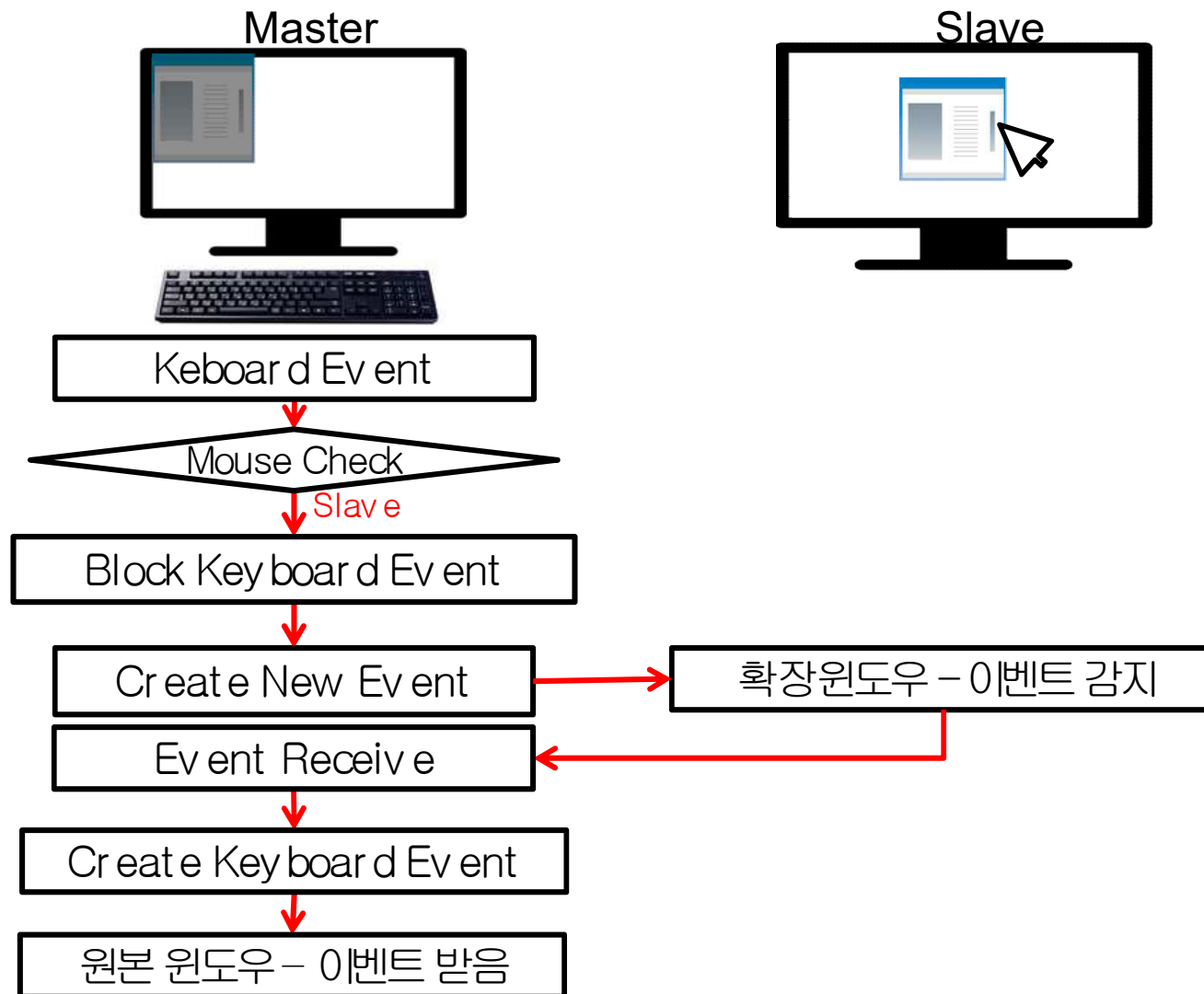
master

이벤트 적용

PROGRAM EXTENSION

2. Window Event Processing

Keyboard event 예시



2

개 발
내 용

USER INTERFACE

2

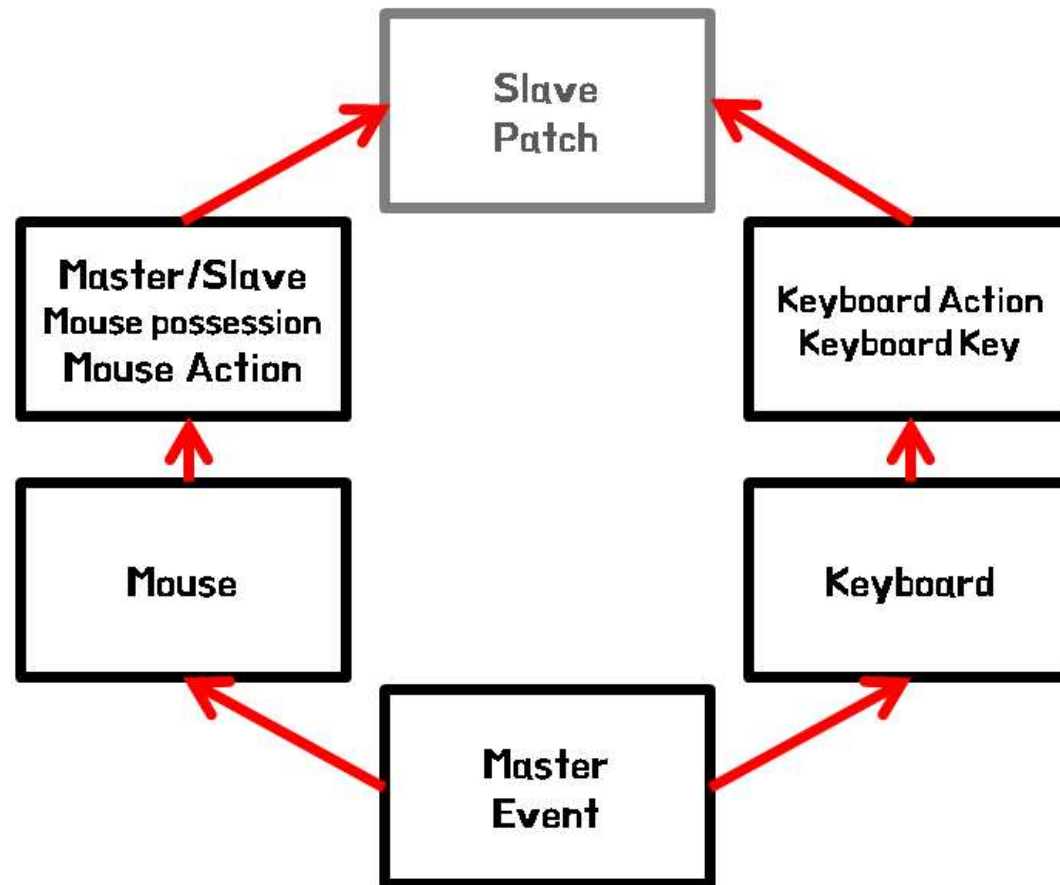
개
내
발
용



Mouse Keyboard Transmission

2

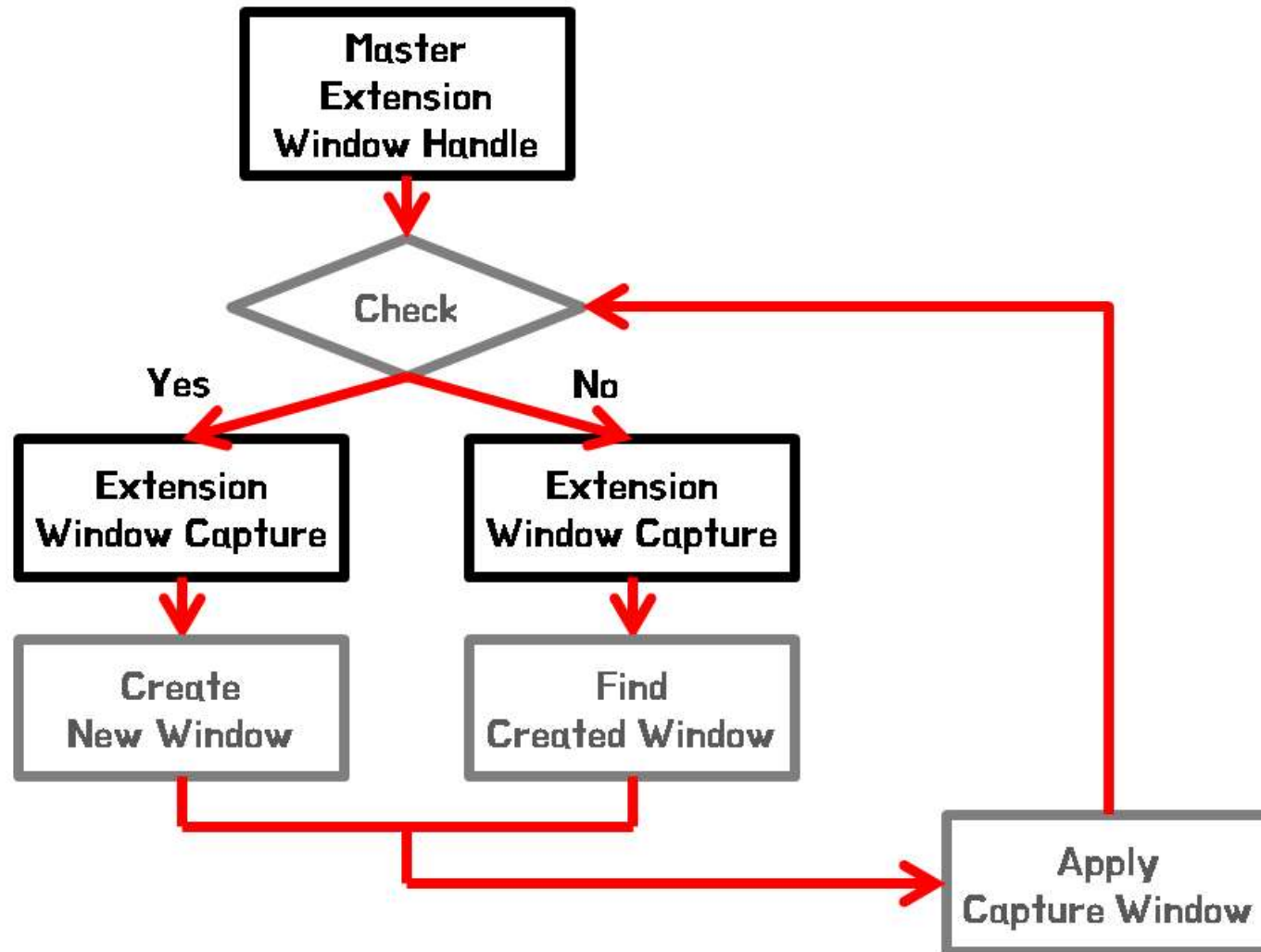
개
내
발
용



Window Image Transmission

2

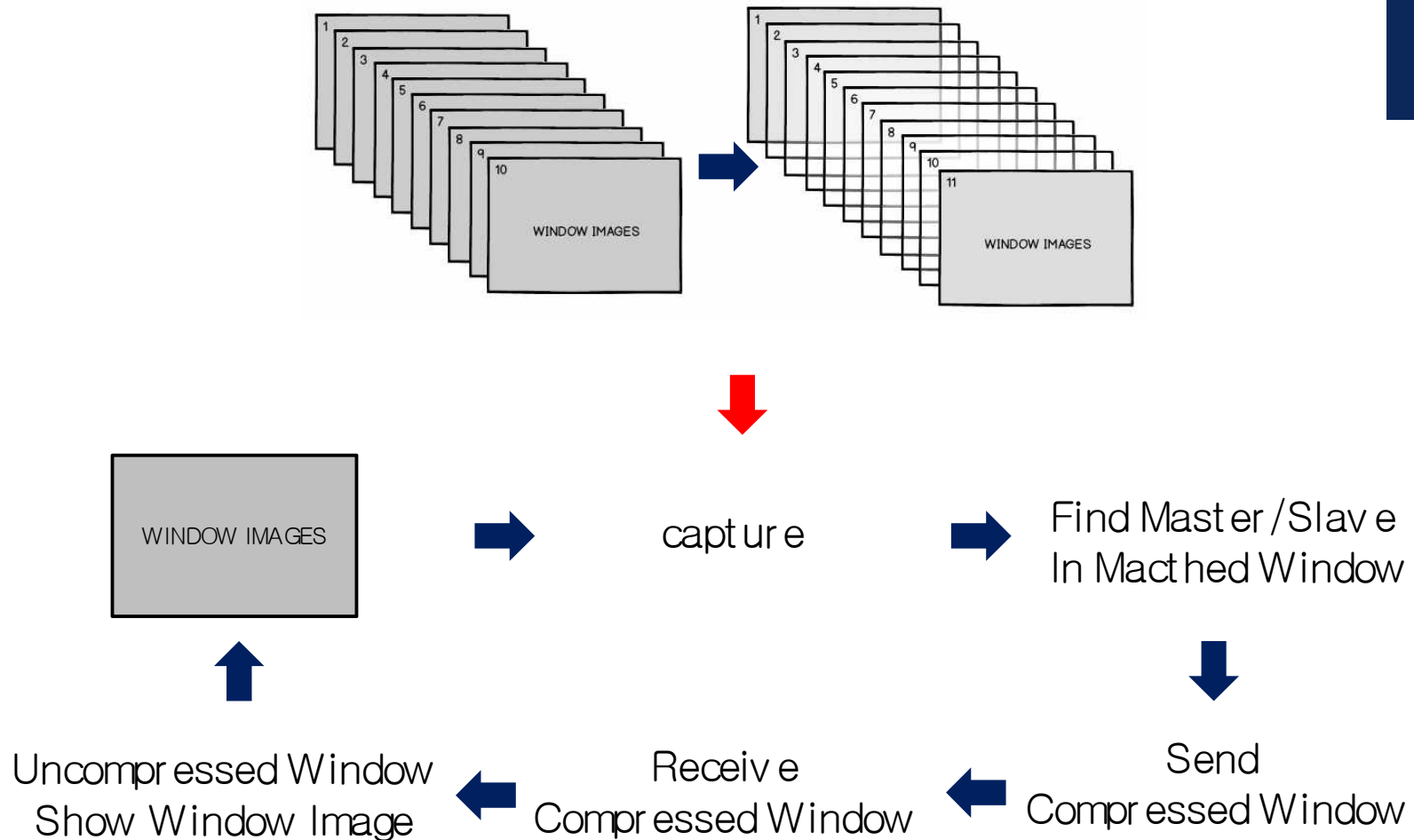
개
내
발
용



Window Image Synchronization

2

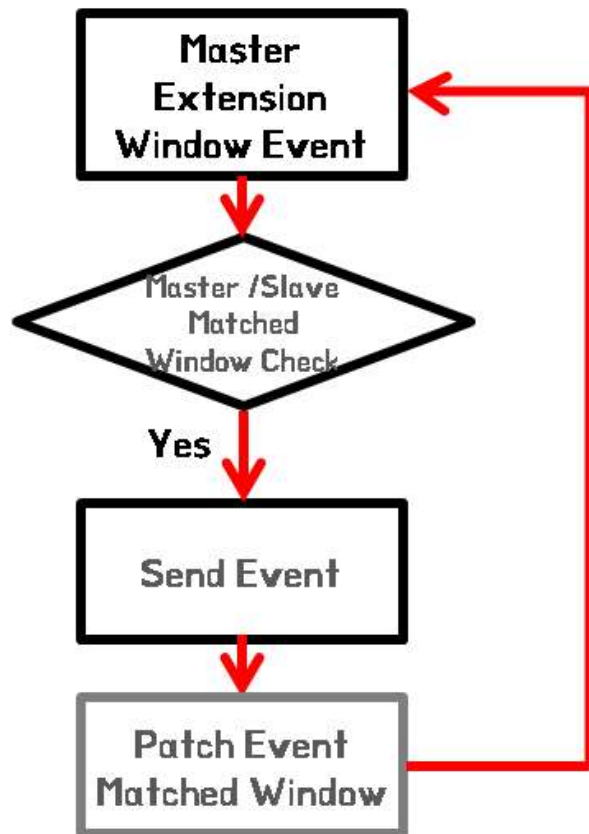
개
내
용



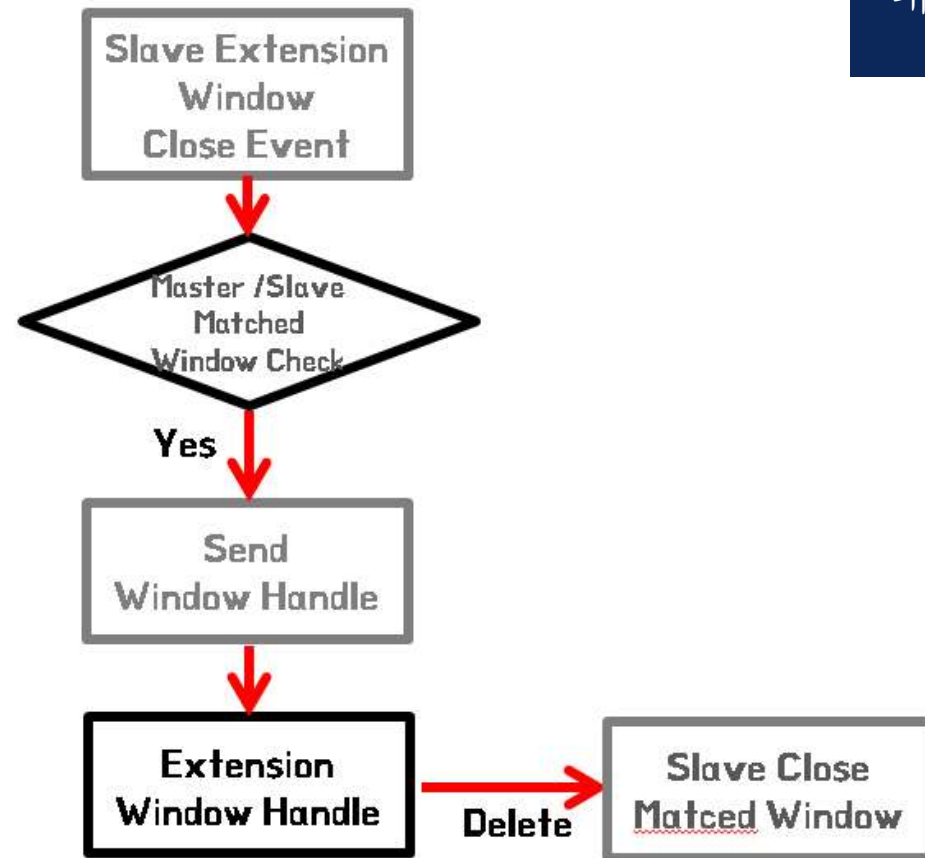
Event Transmission

2

개 발
내 용



Original Flow

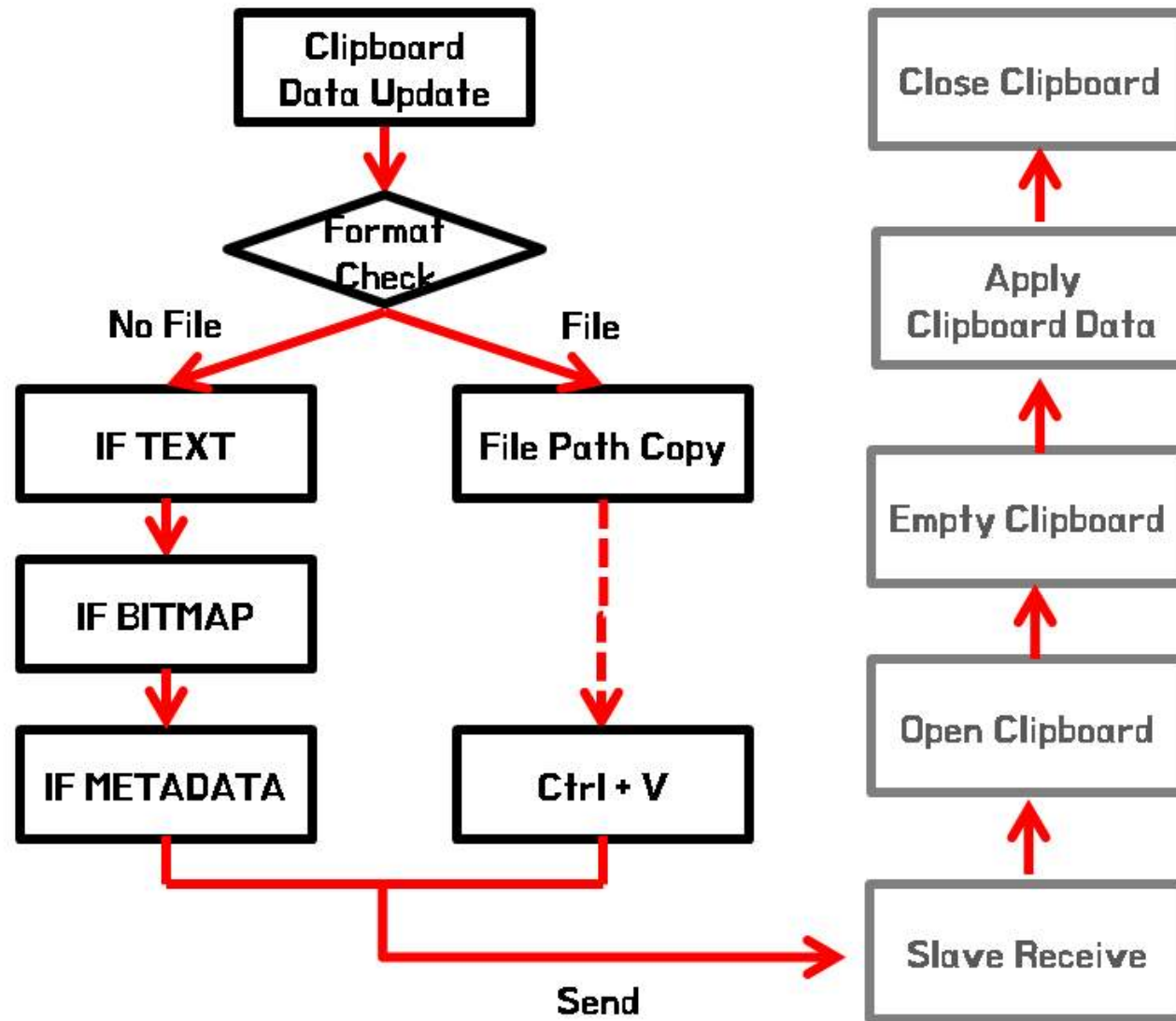


Closed Event Flow

Clipboard Transmission

2

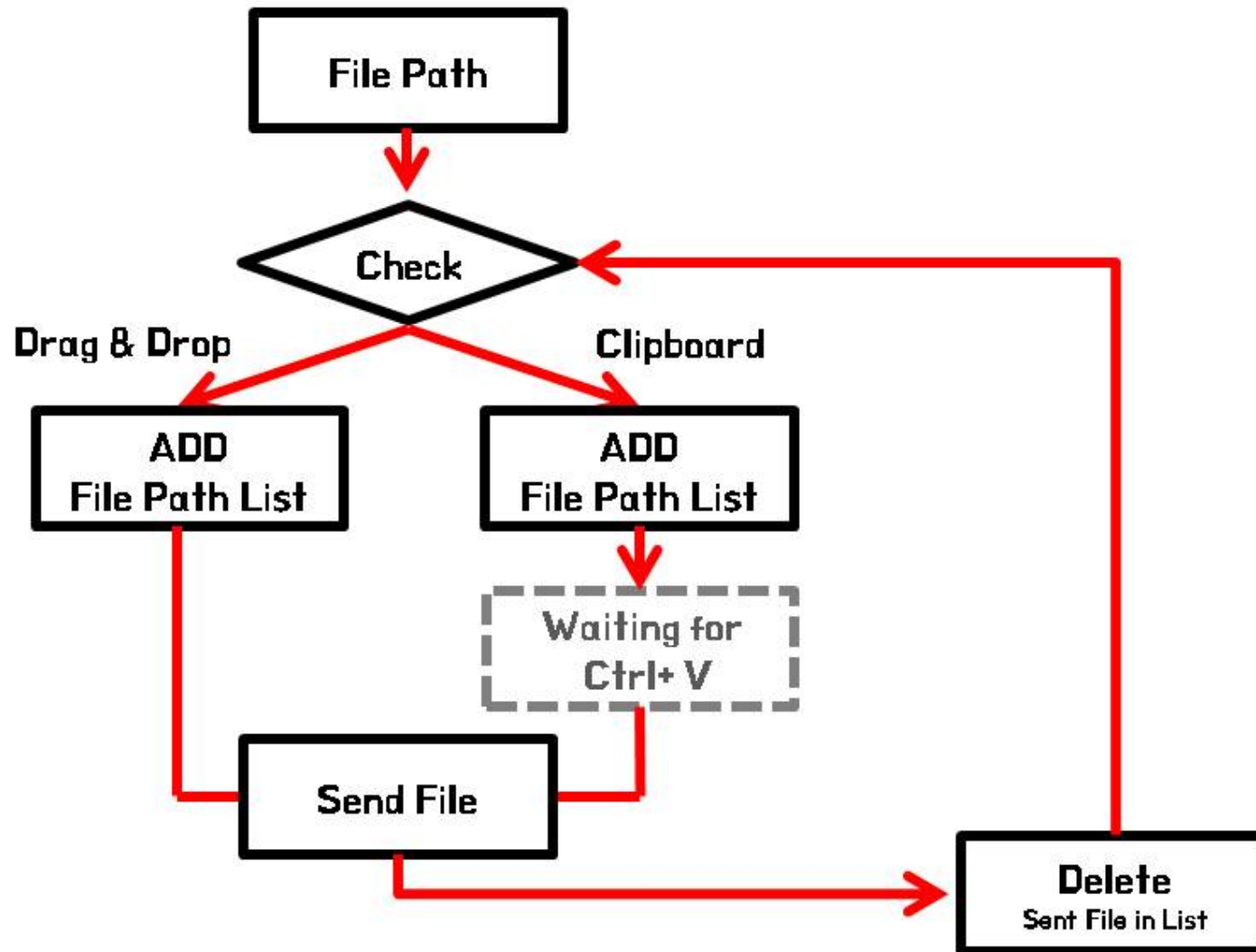
개 발
내 용



File Transmission (Drag & Drop / Ctrl + C & Ctrl + V)

2

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1 개발
동기

2 개발
내용



3 시 연
Q&A

시연

3

시 연

시연 동영상

시연

3

시 연

시연

Q&A

3

Q&A

Q&A



감사합니다.

