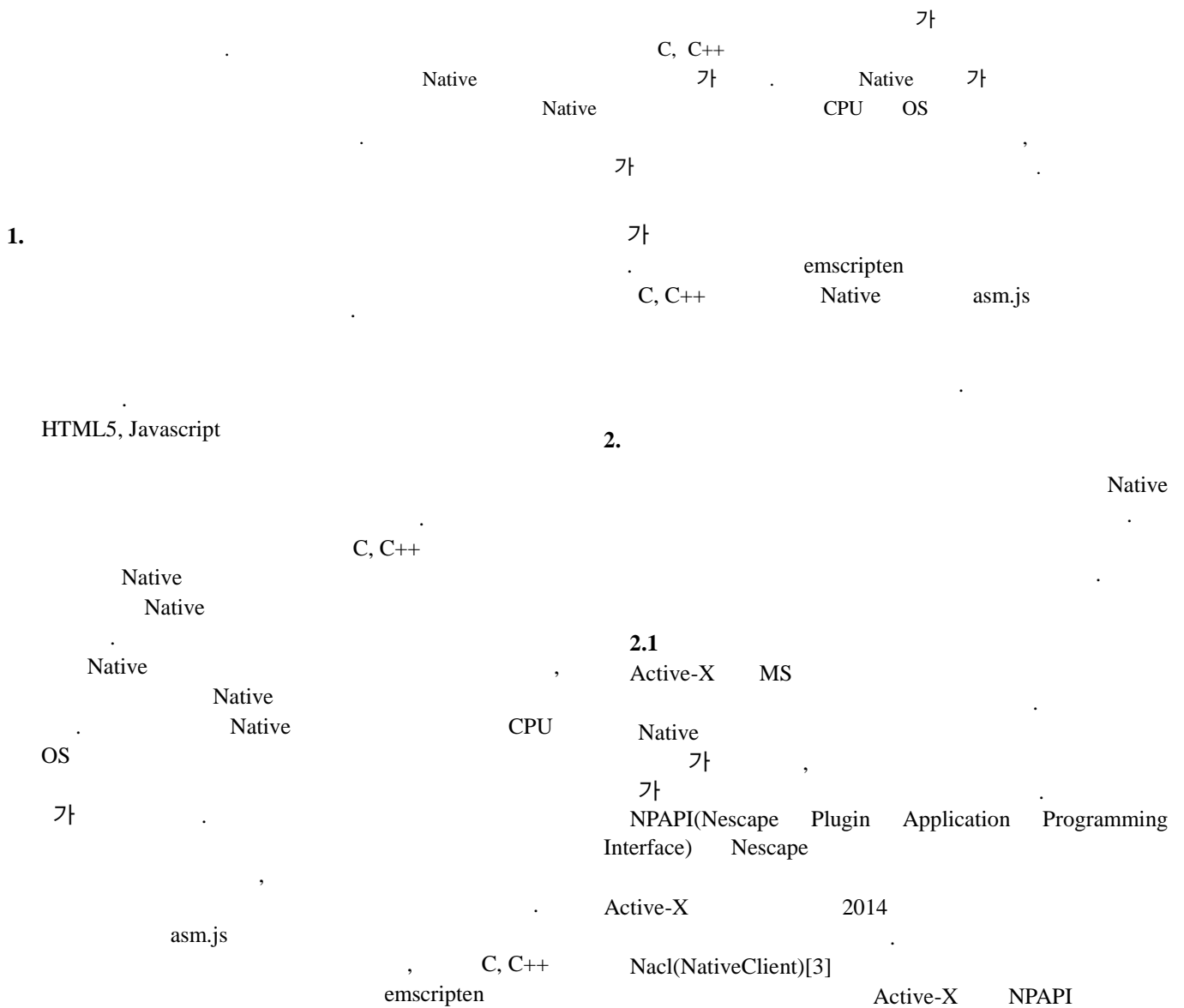


Native

*, **
*
**
e-mail : hw.nam@koreasmartcard.com

A Study on Platform Independent of Javascript Application based Native Code

Hyunwoo Nam*, Neungsoo Park**
*Korea Smart Card
**Dept. of Computer Engineering, Konkuk University



2.2. CPU OS

Sandboxing Native 가 Unreal Engine 3 3D Emscripten

Nacl Native 가 “Firefox+asm.js” Emscripten Native

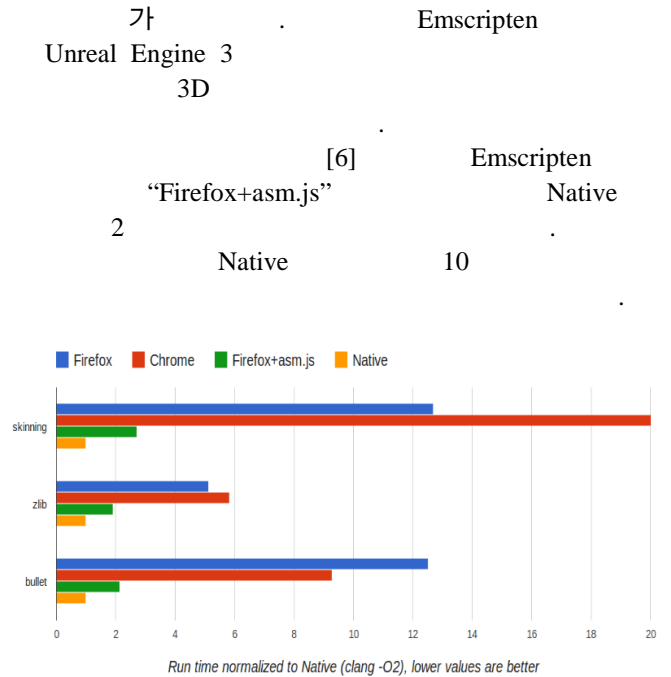
PhoneGap[1] iOS Object-C

Java PhoneGap H/W

HTML Native

Native APP Node.js

Native (1) asm.js



2.3 가

Java Applet

JRE(Java Runtime Environment)가 H/W JRE

OS 가 C, C++

Java 가 C, C++

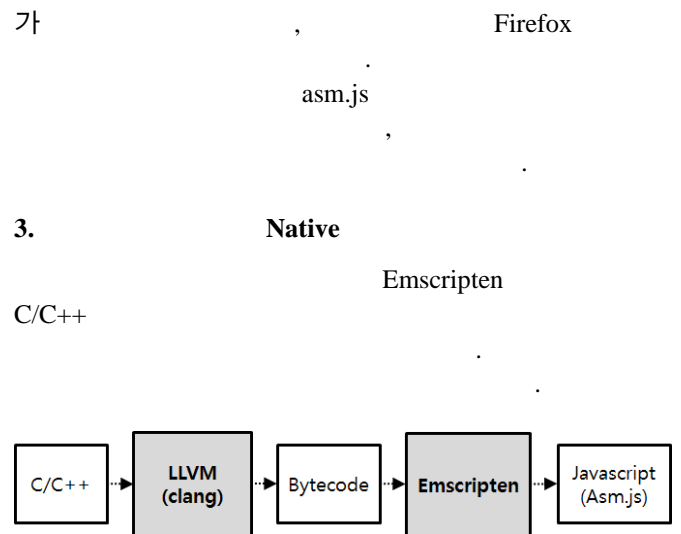
C++ Native 가 C, C++

Nacl CPU 가 C, C++

Pnacl KIST

가 Pnacl OceanVM 가 LLVM 가

가 Pnacl OceanVM LLVM 가



2.4 Emscripten asm.js

Emscripten[4] LLVM Bytecode

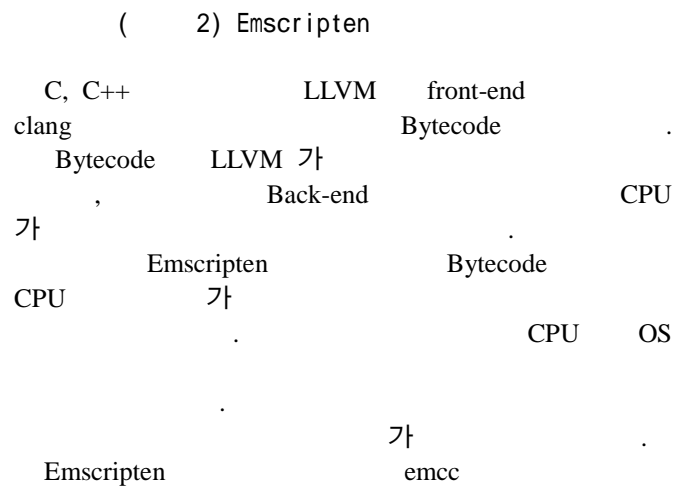
Machine)[2] LLVM(Low Level Virtual C, C++

가 front-end Bytecode

가 Emscripten Bytecode C, C++

Emscripten asm.js[5]

asm.js

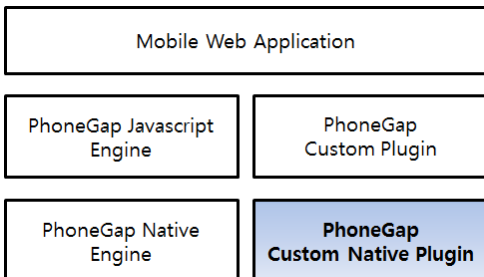


C/C++
html
\$./emcc hello.cpp
node.js
\$ node a.out.js
html
가
\$./emcc hello.cpp -o hello.html

Emscripten Native
C, C++
Native
Native
가

4.
Emscripten Application C, C++
Native

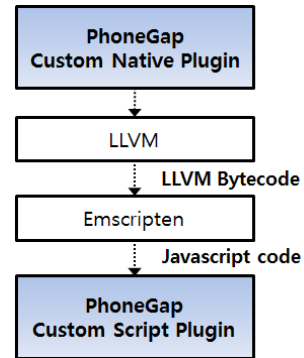
PhoneGap
PhoneGap
Mobile Web Application PhoneGap Javascript Engine
Custom Plugin Application
Custom Plugin Custom Native Plugin
PhoneGap CPU OS
가



(3) PhoneGap

Custom Native Plugin PhoneGap
가
Custom Native Plugin

PhoneGap Custom Native Plugin



(4) Native Plugin

Custom Native Plugin
Javascript Engine
PhoneGap
PhoneGap
Node.js
Native
가

5.

Native
Emscripten
Asm.js 3D
가
Emscripten
C, C++ 가 Javascript

[1] PhoneGap Site, <http://phonegap.com>
 [2] LLVM Site, <http://www.llvm.org/>
 [3] Nacl Site, <https://developers.google.com/native-client/>
 [4] Emscripten Site, <https://github.com/kripken/emscripten/>
 [5] Asm.js Site, <http://asmjs.org/>
 [6] http://kripken.github.io/mlloc_emscripten_talk
 [7] , , "CPU

2010 , , , 2010. 6