



FP7 Coordination and Support Action to fund 50 technology transfer projects (TTP) in computing systems. This project has received funding from the European Union's Seventh Framework Programme for research, technological development and demonstration under grant agreement n° 609491.

Software protection of native Android libraries

Bjorn De Sutter, Koen De Bosschere, Ghent University, Belgium
Samsung Research, United Kingdom

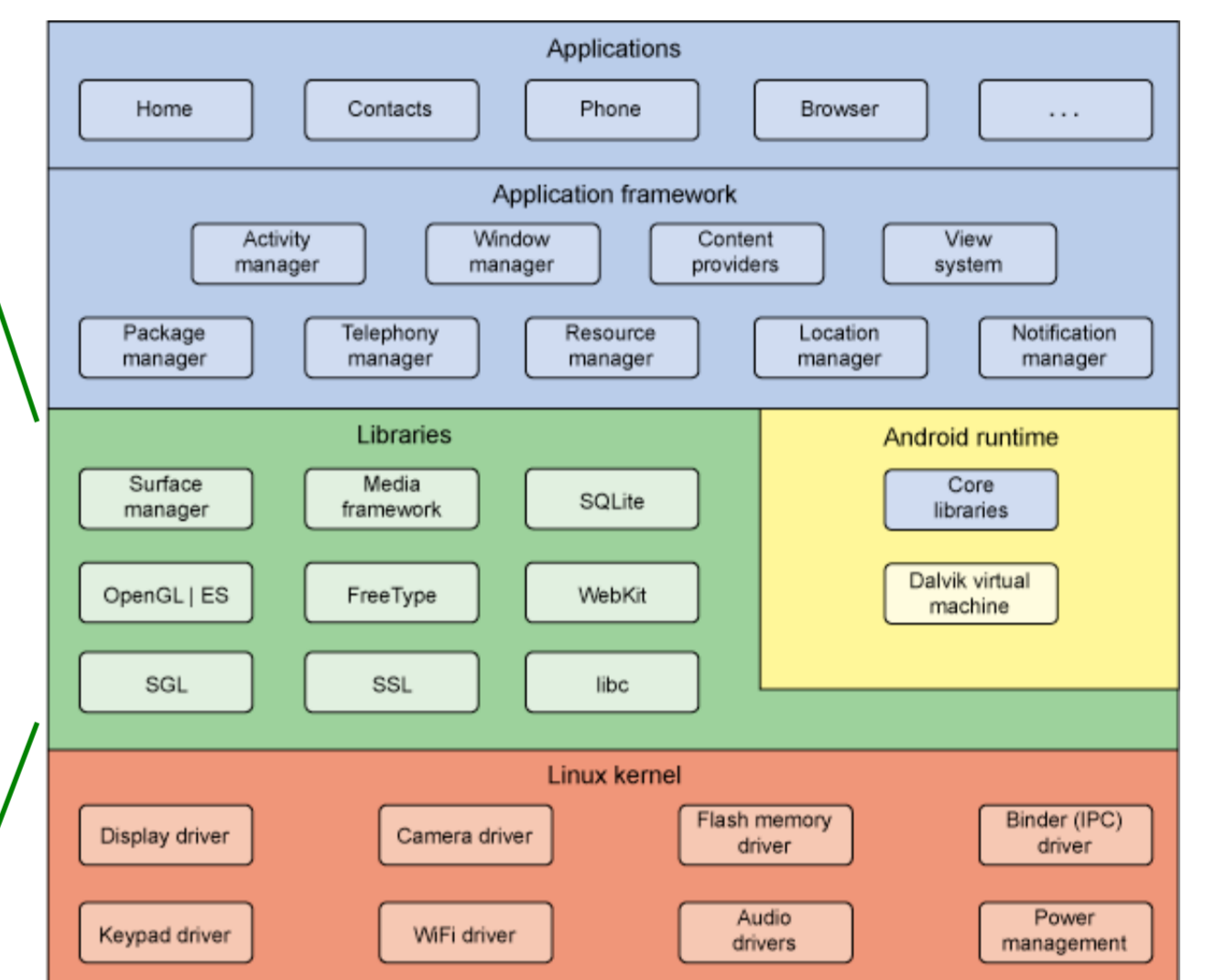
TTP Problem



- relatively open platform, mostly running ARM / x86 processors
- used for smartphones, tablets, TVs
- customization and apps added by the device vendor

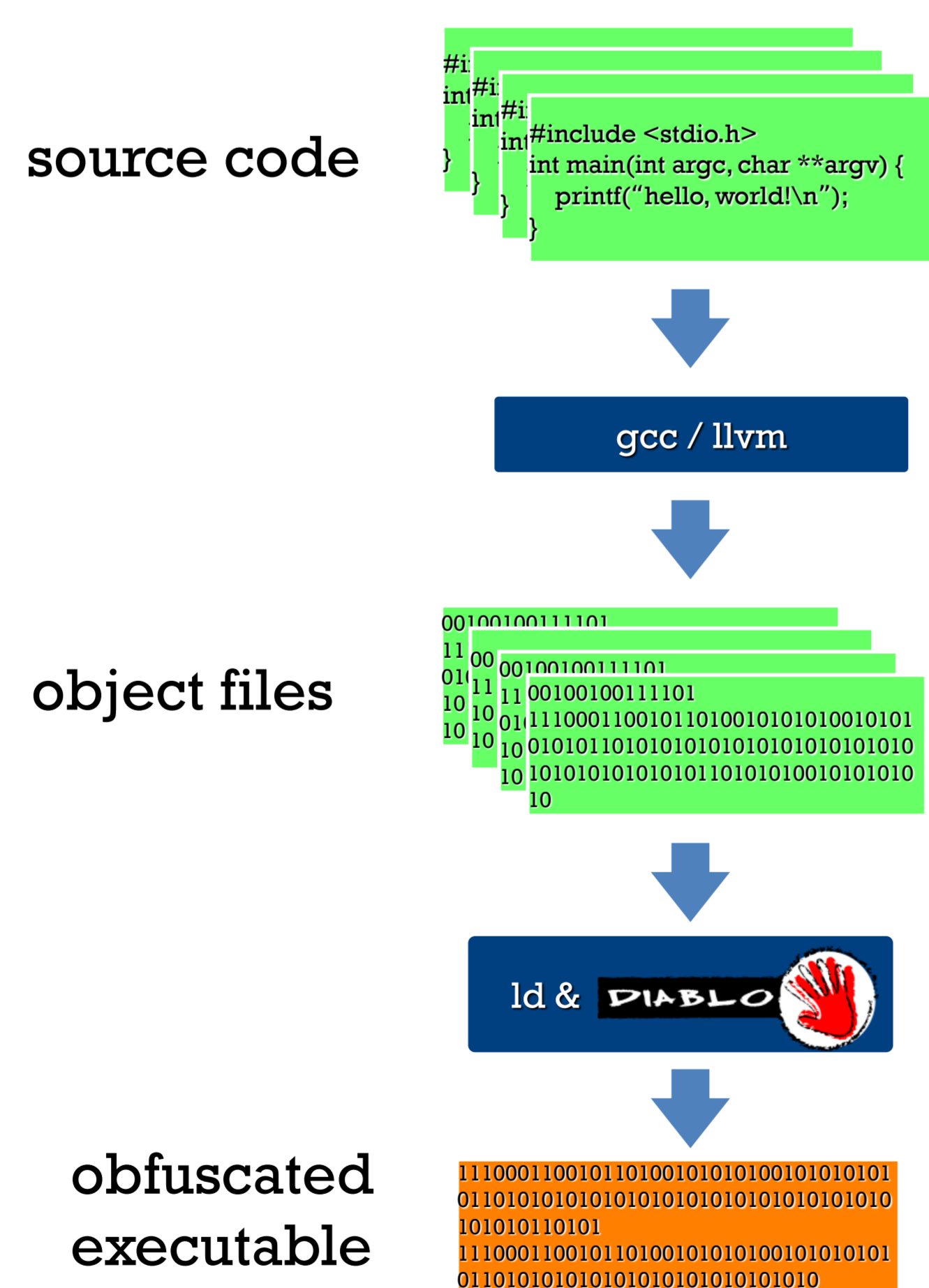


- Native libraries provide security-critical and performance-critical functionality
- So protection is needed against reverse engineering and tampering
- Open source compilers are used in Android NDK (LLVM, gcc)



TTP Solution

- Link-time rewriting framework
- Used for many code rewriting applications
- Compatible with open source compilers
- Supports multiple architectures, incl. x86 & ARM
- More than a decade of **research**



before the project:	after the project:
<ul style="list-style-type: none"> statically linked binaries 	<ul style="list-style-type: none"> statically linked binaries dynamically linked binaries dynamically linked libraries
<ul style="list-style-type: none"> x86 and ARMv4 	<ul style="list-style-type: none"> x86 and ARMv7 (incl. Thumb2)
<ul style="list-style-type: none"> C & Fortran 	<ul style="list-style-type: none"> C & Fortran C++ (incl. exceptions)
<ul style="list-style-type: none"> GCC 3.2.2/4.3.6 Linux only 	<ul style="list-style-type: none"> GCC 4.8.1 LLVM 3.4 Android 4.3 (NDK API-level 18)
<ul style="list-style-type: none"> x86 software protection 	<ul style="list-style-type: none"> x86 & ARM software protection

TTP Facts

Contact: Bjorn De Sutter
E-mail: bjorn.desutter@elis.ugent.be
TETRA COM contribution: 25,000 EUR
Duration: 06/01/2014-31/09/2014

