Grey boxes are existing modules/packages. The SPIN Trans module in Bandera is modified. Java code: **SmartThings** Apps Standard **GParser** code Groovy ' Handler Parser Code **Groovy AST** Java Generator **AST** Translator G2J Translator ∃Java Front-end Jimple Back-ends Apps' Promela configurations Model code of SPIN Trans Generator event User-defined BIR BIR handlers properties dSPIN Trans Constructor Promela model of the IoT system **SMV Trans** IoTSan Bandera