



# SVSHI



## Secure and Verified Smart Home Infrastructure



Samuel  
Chassot



Andrea  
Veneziano



Aymeri  
Servanin



Leo  
Alvarez



Isis  
Daudé



Ladina  
Roffler



Loïc  
Montandon

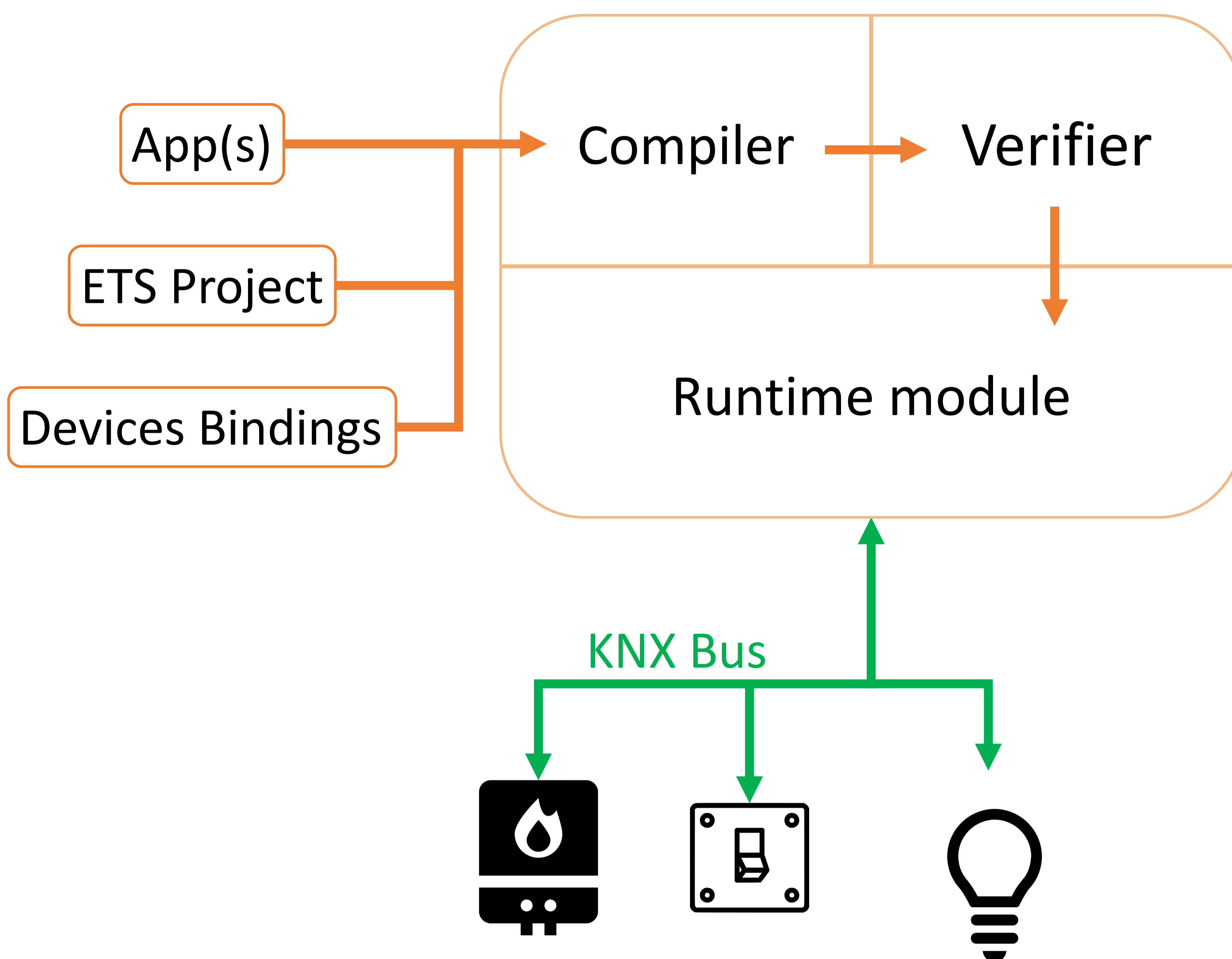


George  
Candea

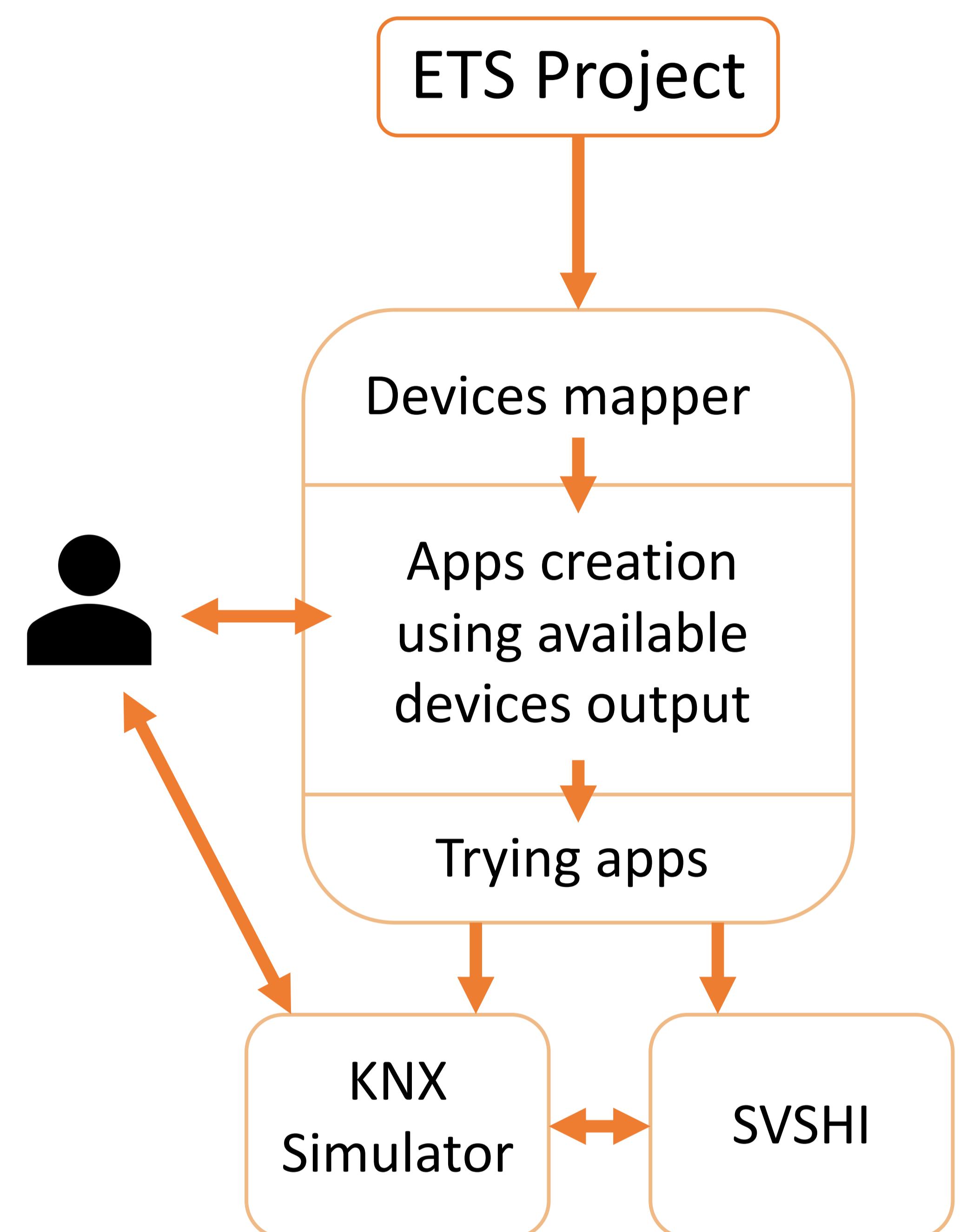
EPFL

SVSHI formally verifies Python smart buildings apps for KNX devices, and takes care of KNX communications.

### SVSHI



### Discovery service



### What we have

- **Post condition** in each app as an arbitrary boolean condition
- **Automatic formal verification** of **all post conditions** validity with respect to **all installed apps**
- Support for **time specific conditions** in post conditions
- **Runtime verification** during apps execution
- **KNX simulator** for apps development and testing
- **Discovery service**: shows **available devices for a given KNX system**, **creates apps** and offers to **test** them on the **simulator** with **SVSHI** with automatically generated bindings

### What we bring

- **Higher abstractions** to KNX
  - **Easier and quicker** KNX configuration
  - **Formal verification** for smart buildings
  - **Transferable** apps for smart buildings
  - A **service to discover SVSHI** and develop apps
- **All this for non-engineer users**

### What's next?

- Discovery service as a **cloud web app**
- **Execution time static analysis** (latency)
- Verification of **physical devices behaviour** at runtime
- Addition of **contracts** encoding physical devices behaviour

