

Authors

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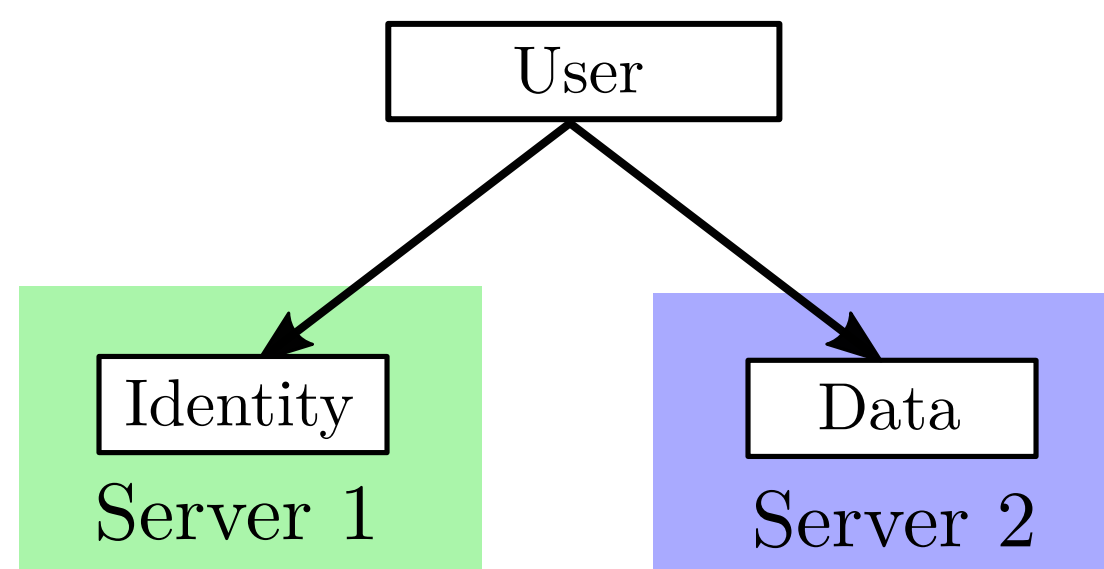
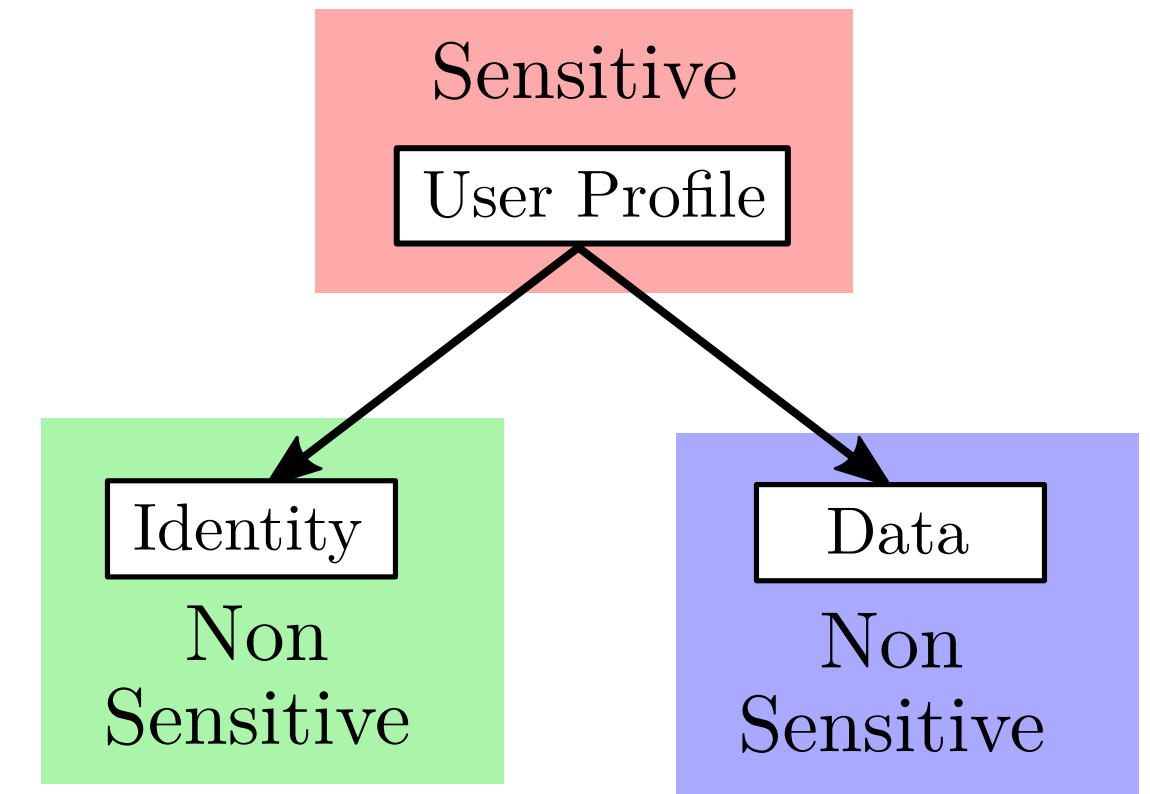
Partners



Data Sensitivity

Privacy Threats

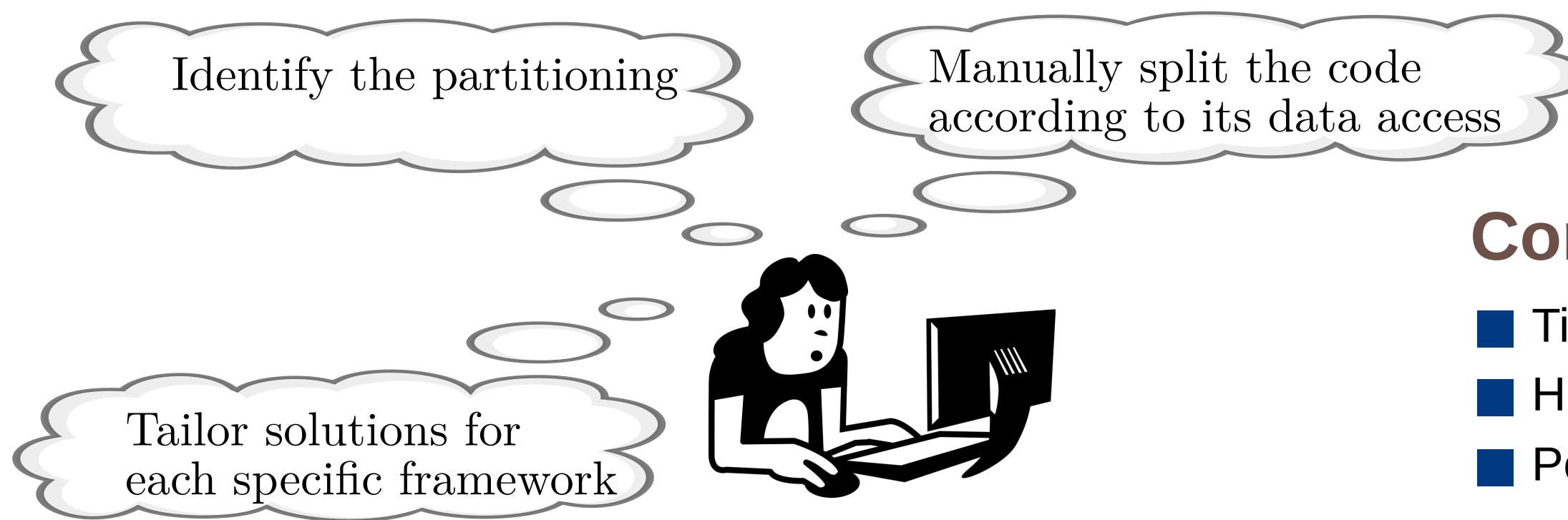
- Personalized online services depending on user profiles
- Applications relied on untrustworthy cloud services
- User profile leakage may threaten user's privacy



Existing Approach: Data Partitioning

- Partition user profiles into non-sensitive components
- Encrypt each partition with a different key
- Deploy partition on :
 - Multiple servers
 - Multiple enclaves within a same server

For the application developer



Constraints

- Time consuming error check
- Hardly possible to adapt legacy code
- Portability issues

My PhD thesis: A Domain Specific Language to enforce privacy

C code with annotation

- Reduce coding time & attack surface of the code
- Effortless adaption of legacy code

Static analysis to ensure correctness

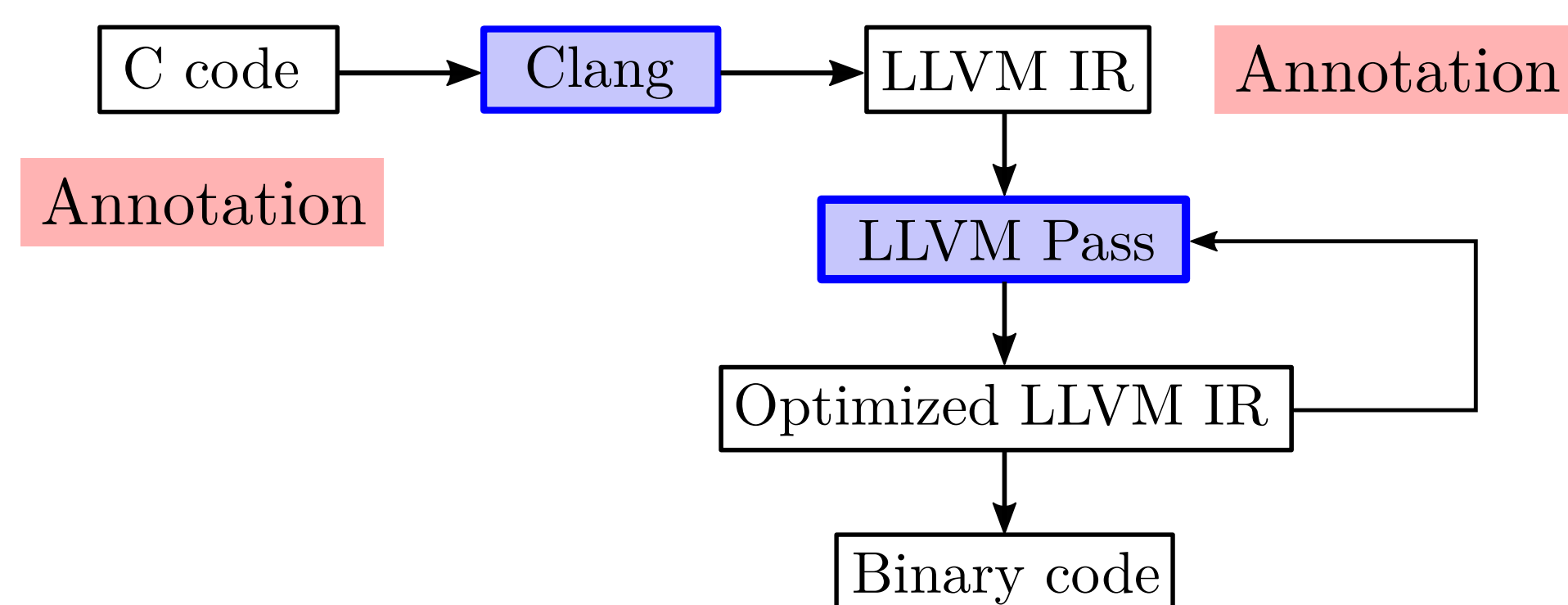
- Prevent data leakage

Automatic code rewriting

- Automatic data partitioning
- Portability for different frameworks

Implementation

Implementation in the LLVM compiler



Example

```

struct healthReport {
    char* name color(green);
    char* medicalReport color(blue);
}
  
```