DCGI

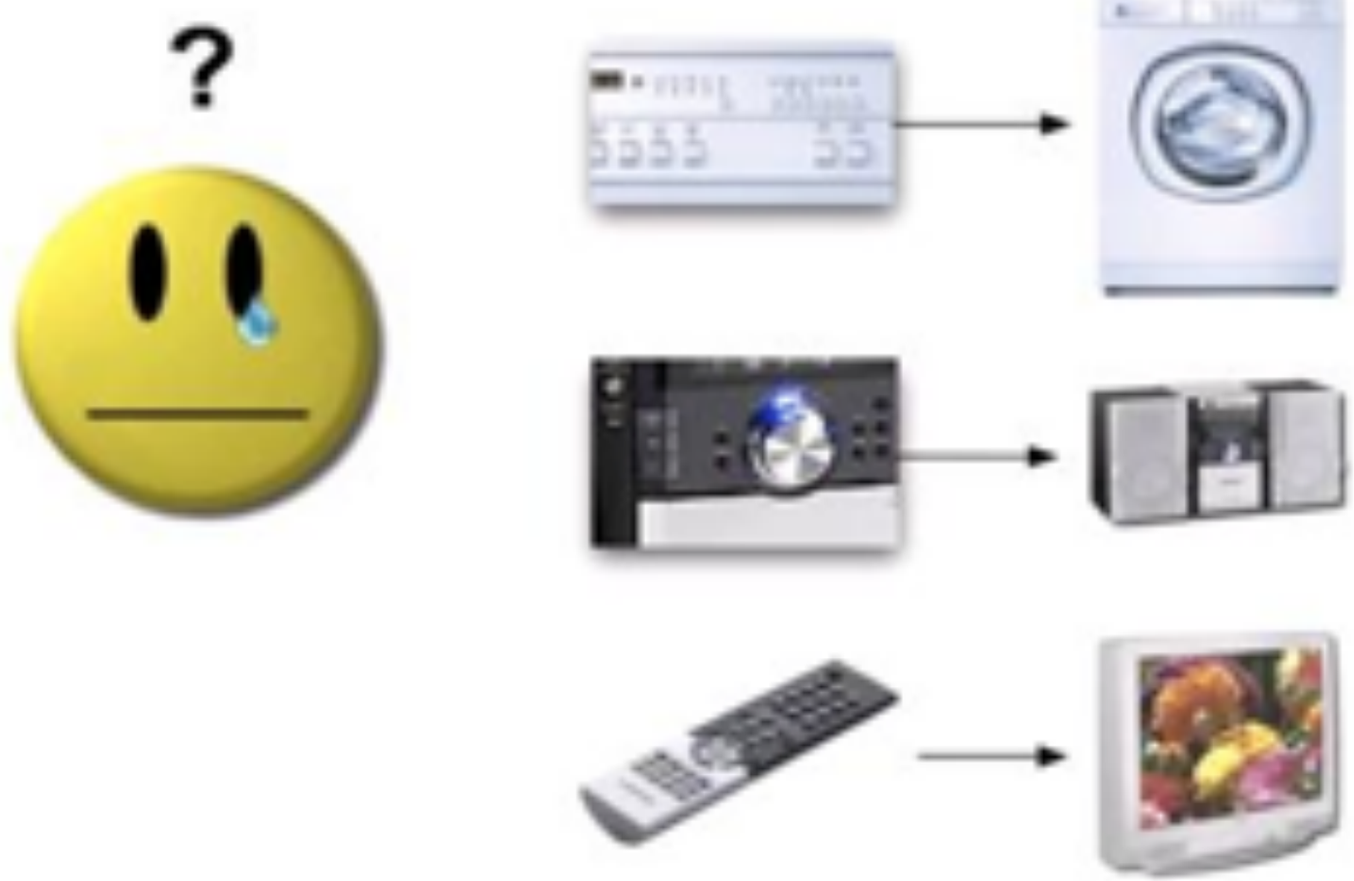
DEPARTMENT OF COMPUTER GRAPHICS AND INTERACTION

SMART HOME USER INTERFACES FOR ELDERLY AND PEOPLE WITH DISABILITIES

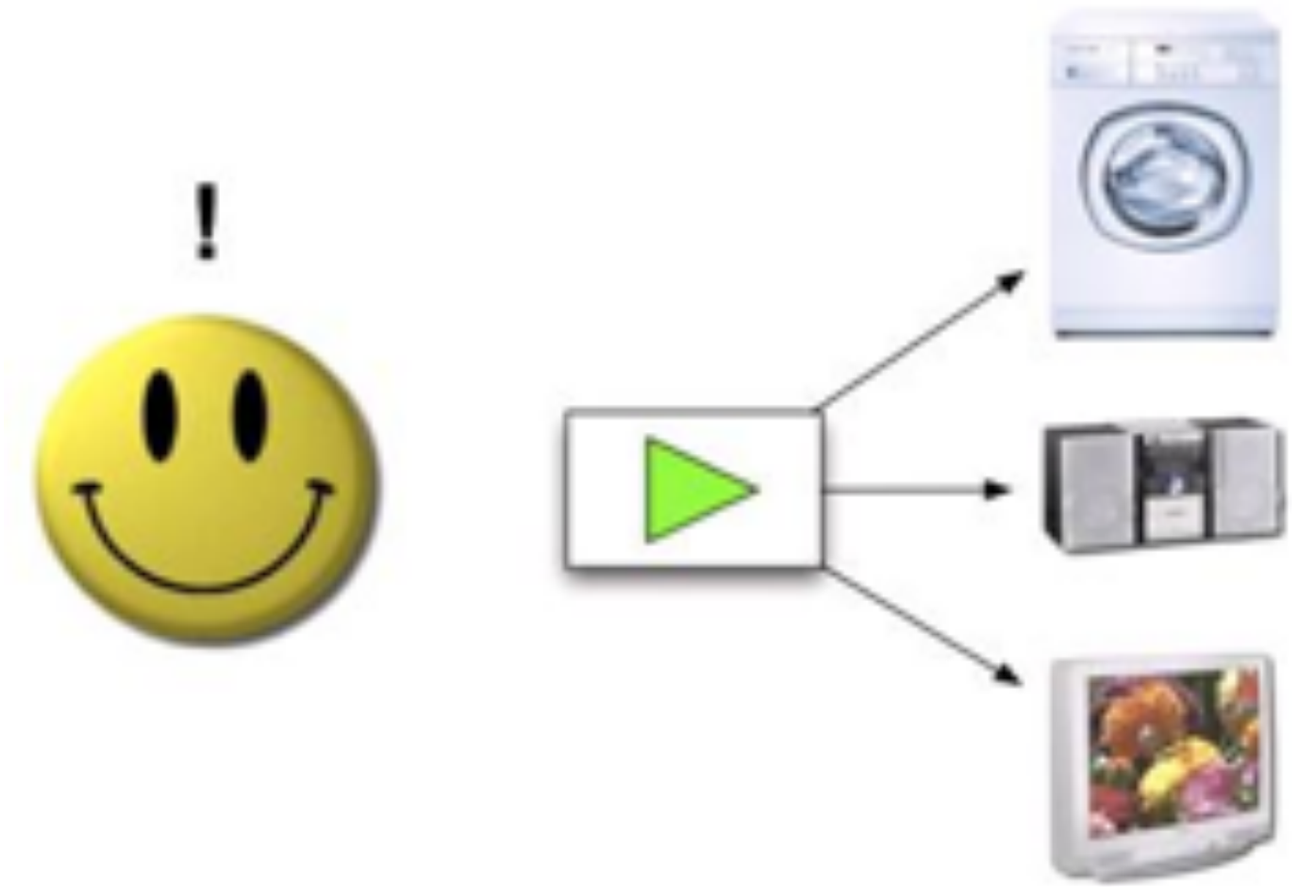
Miroslav Macík

Martin Klíma

MOTIVATION



MOTIVATION



URC

- **U**niversal **R**emote **C**onsole
  - ... through which a user accesses and controls
  - … any electronic & IT product or service
- ISO Standardised (ISO/IEC 24752)
- Core part - **U**niversal **C**ontrol **H**ub

URC | MIDDLEWARE FOR SMART HOME

URC | MIDDLEWARE FOR SMART HOME

WebClient

.NET Client

Smartphone

Clients

URC | MIDDLEWARE FOR SMART HOME

WebClient

.NET Client

Smartphone

TV

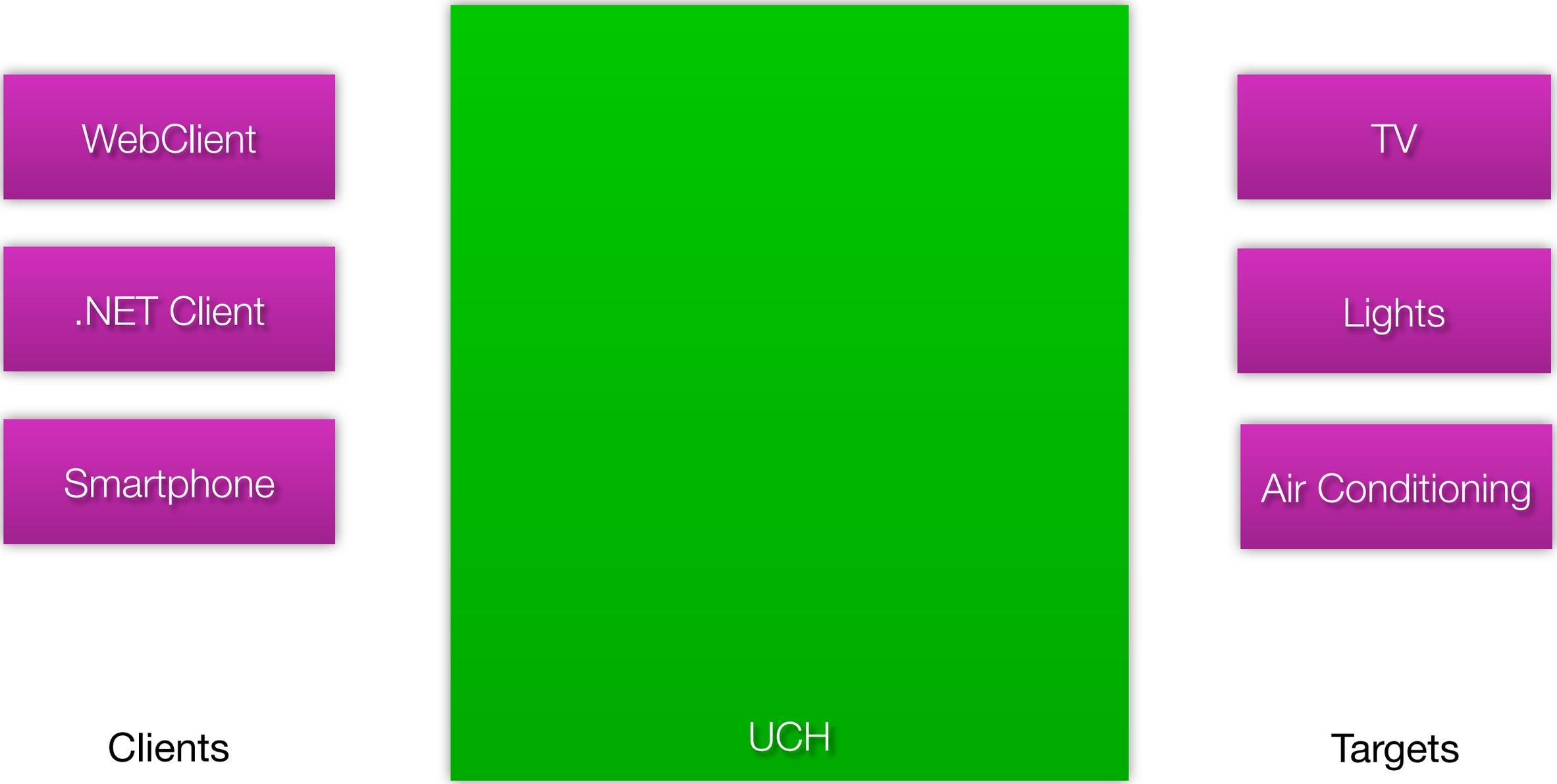
Lights

Air Conditioning

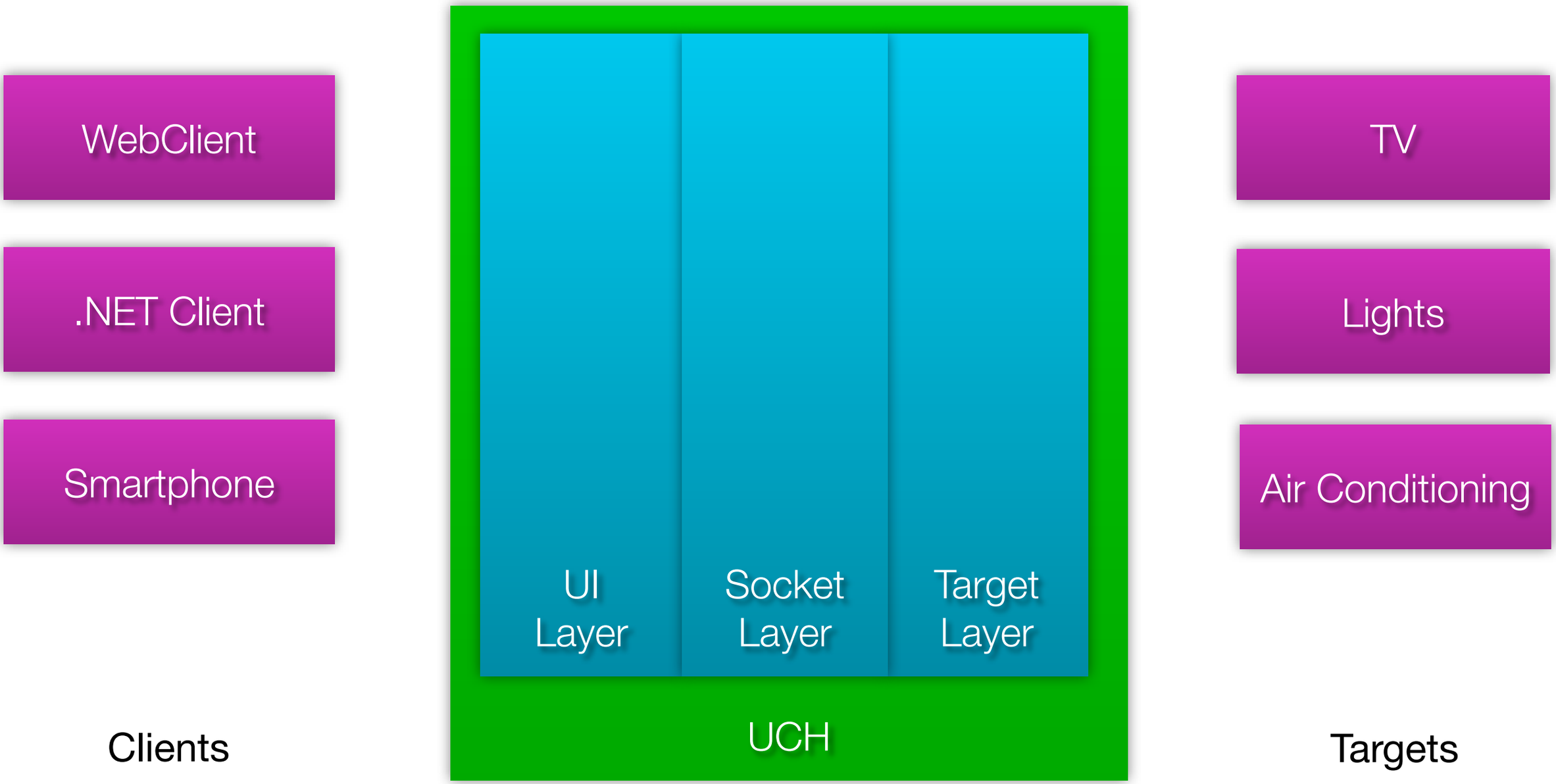
Clients

Targets

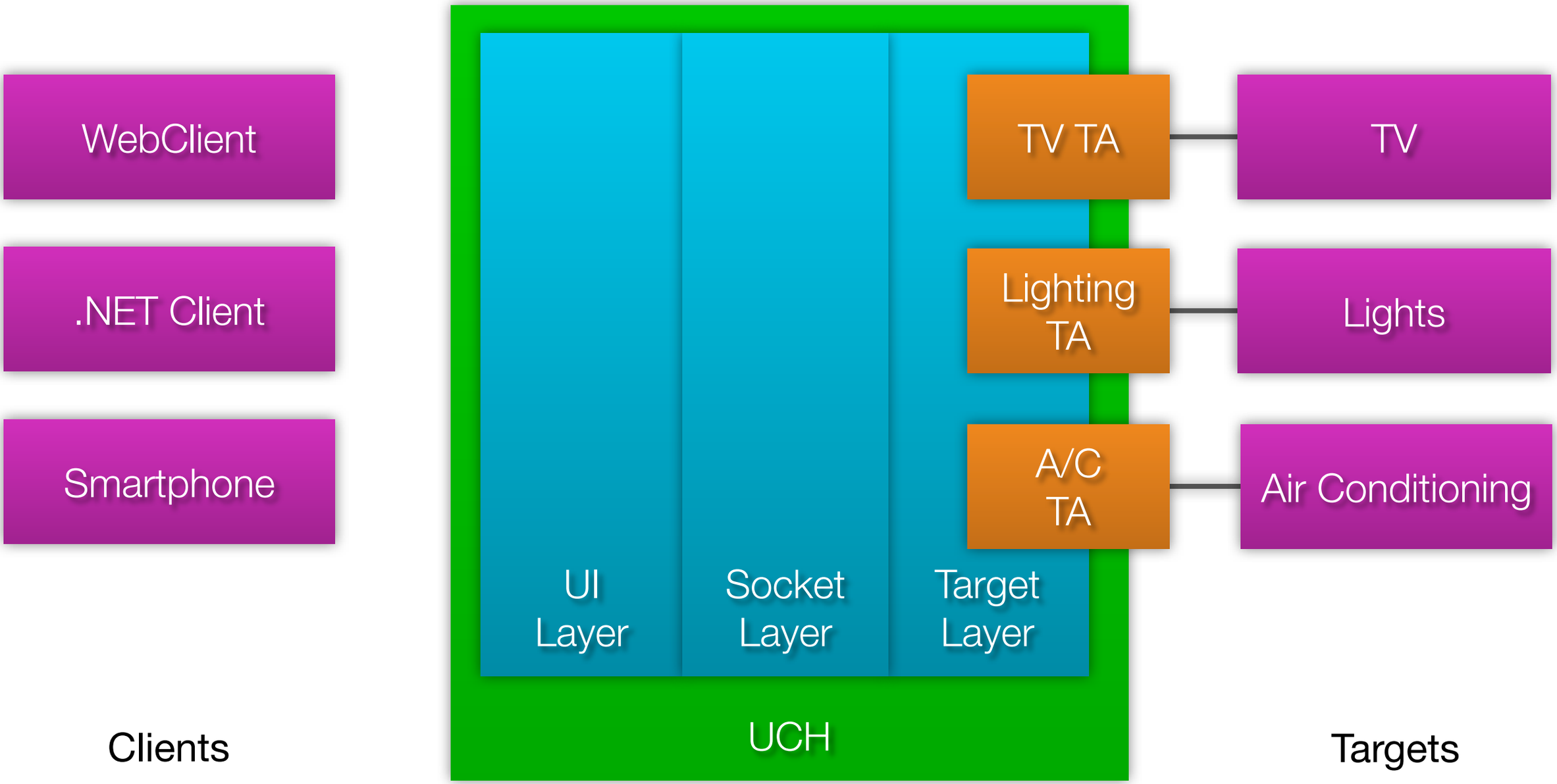
URC | MIDDLEWARE FOR SMART HOME



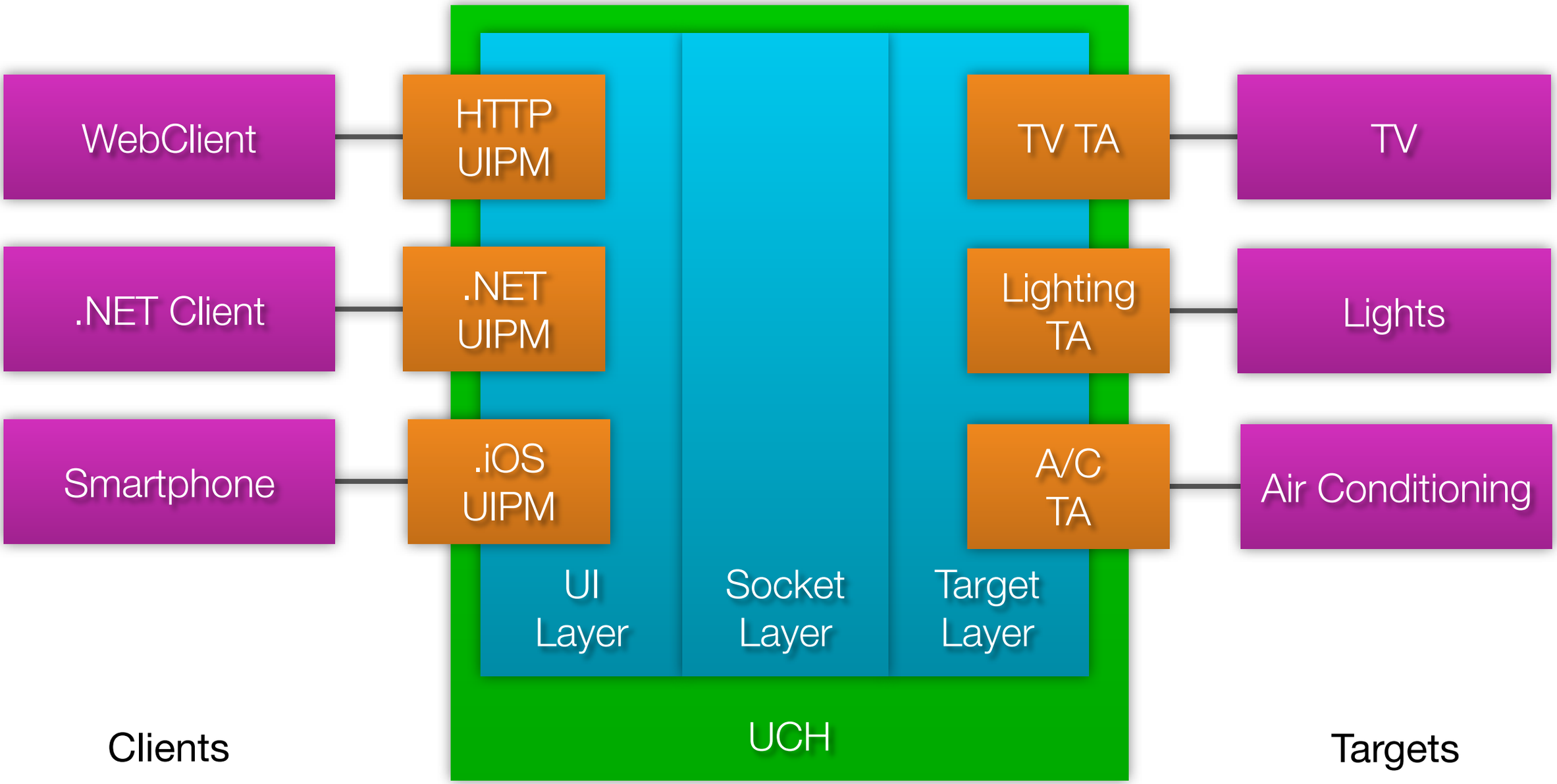
URC | MIDDLEWARE FOR SMART HOME



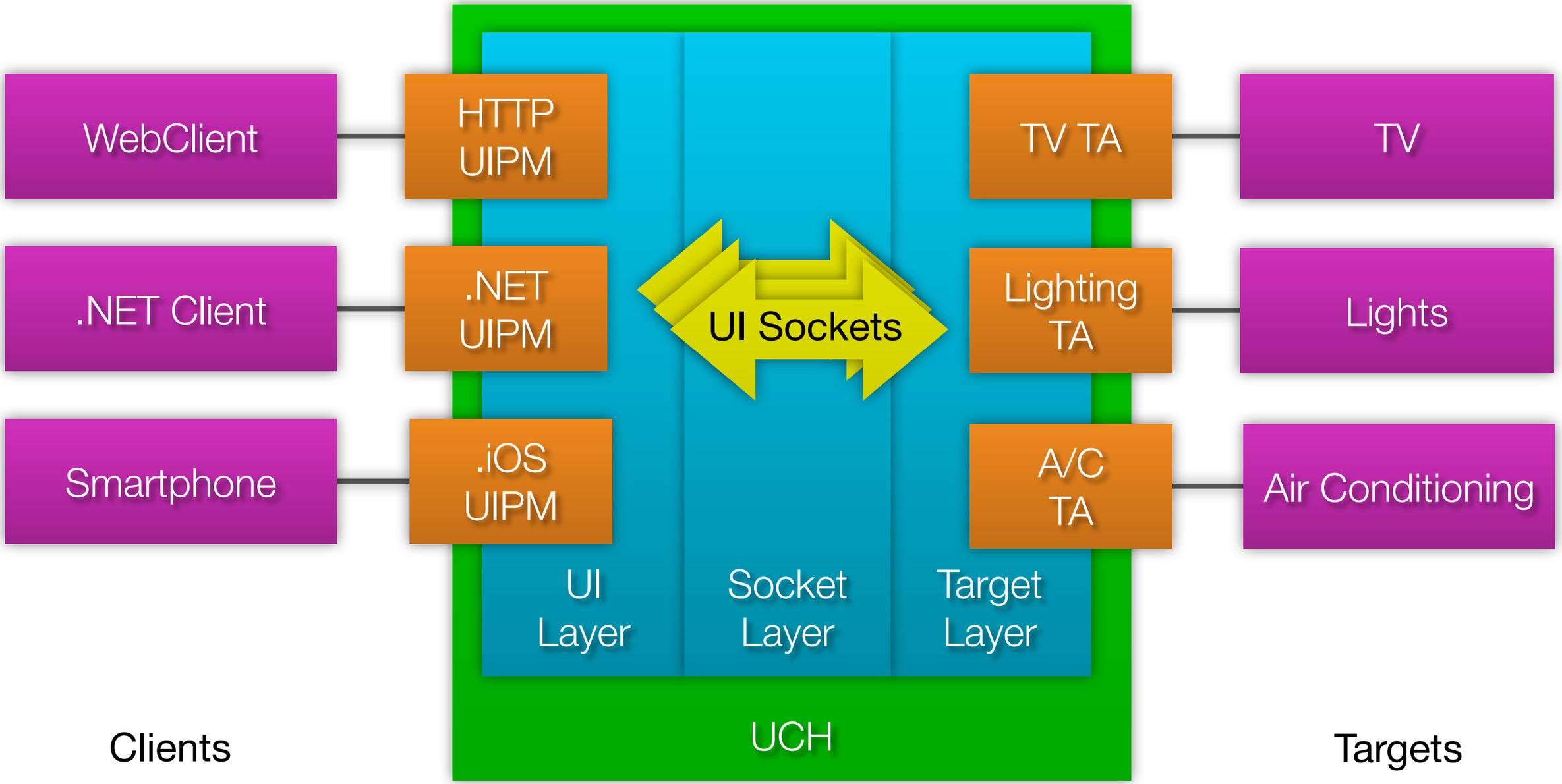
URC | MIDDLEWARE FOR SMART HOME



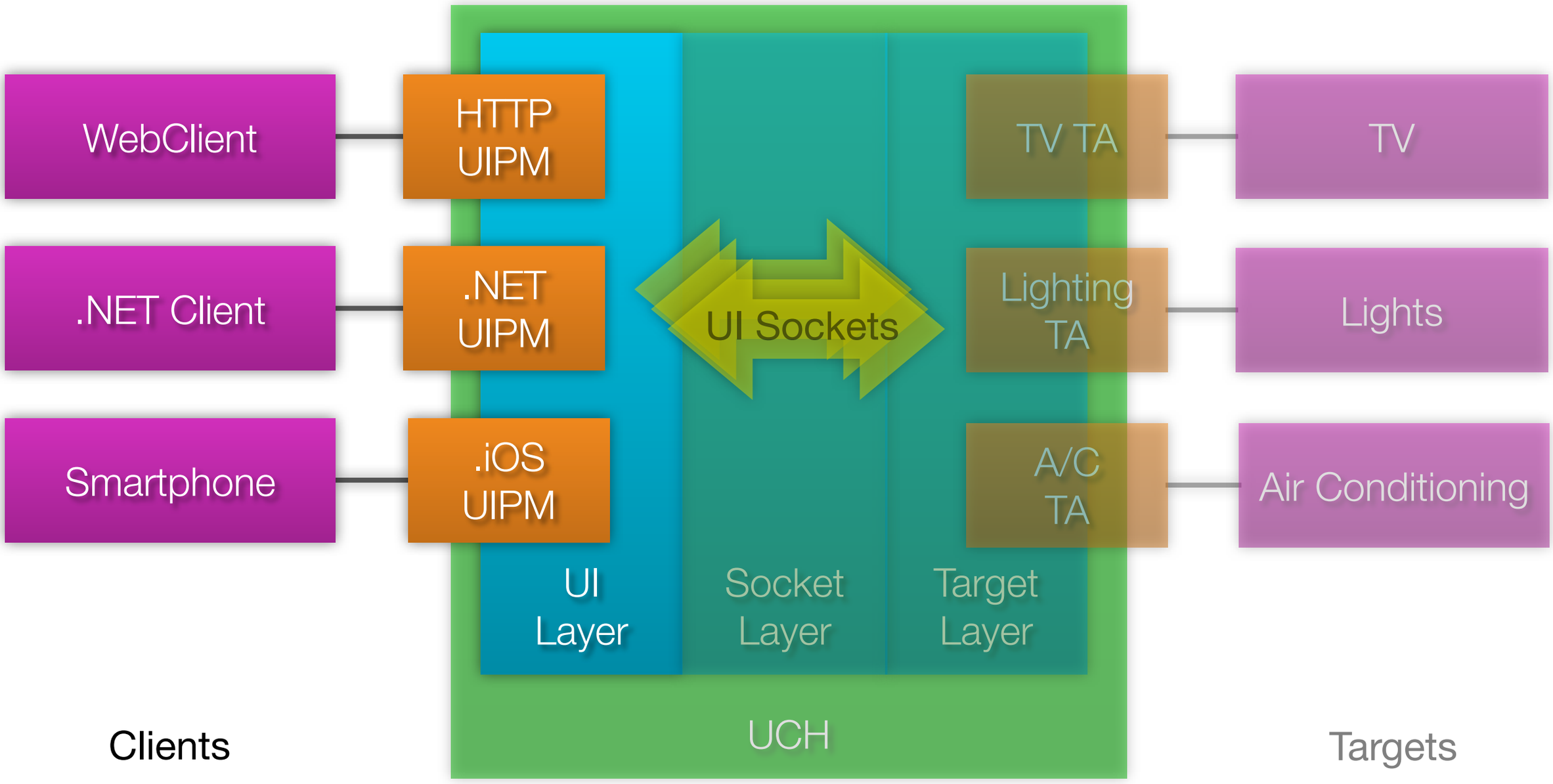
URC | MIDDLEWARE FOR SMART HOME



URC | MIDDLEWARE FOR SMART HOME



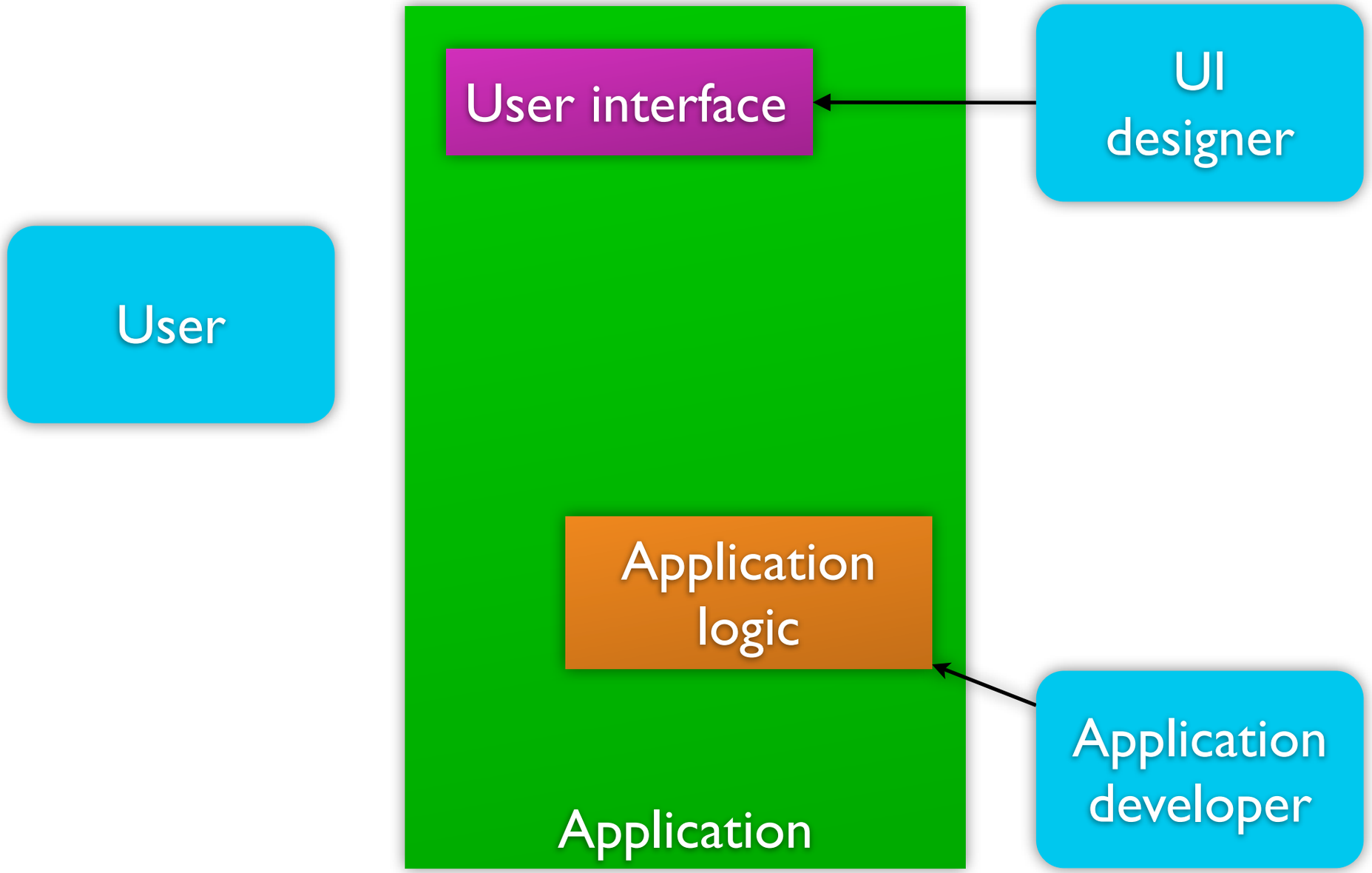
URC | MIDDLEWARE FOR SMART HOME



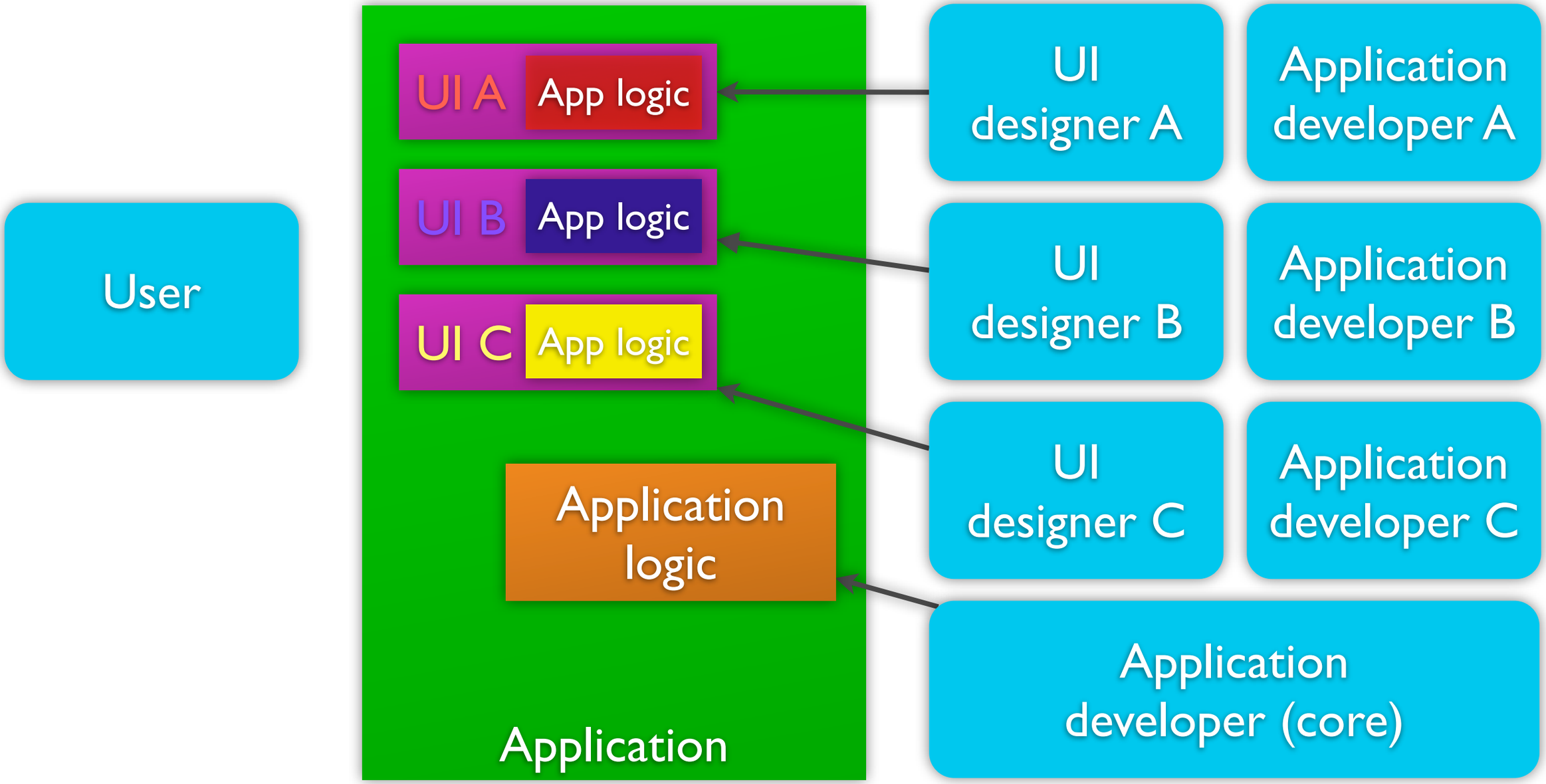
URC | USER INTERFACES

- original UCH covers communication between clients and targets
- user interfaces are platform specific
  - high development and maintenance costs
- solution: **U**ser **I**nterface **P**latform
  - single interface for any client platform

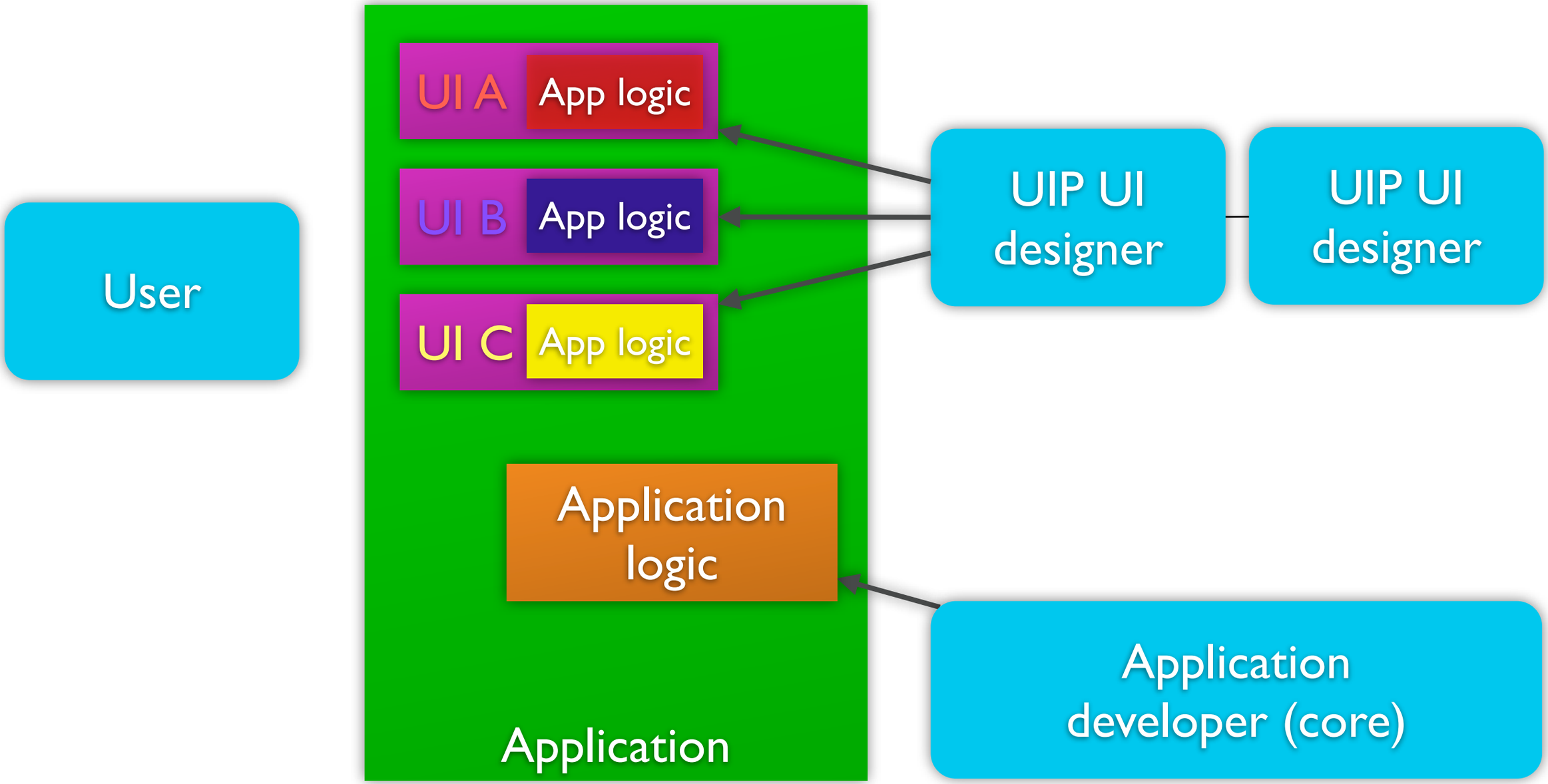
UIP MOTIVATION | SIMPLE UI



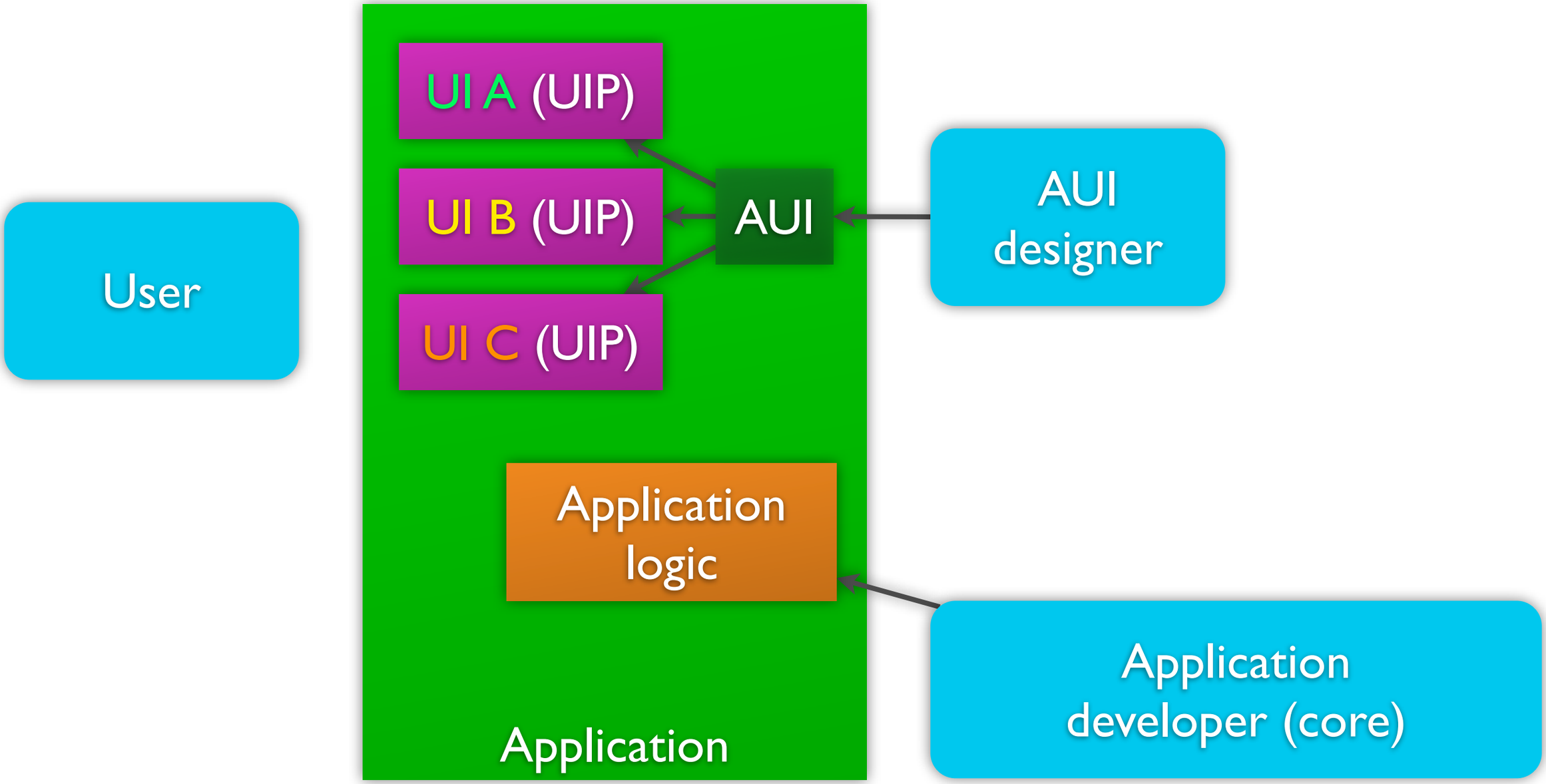
MOTIVATION | MULTI DEVICE - URC



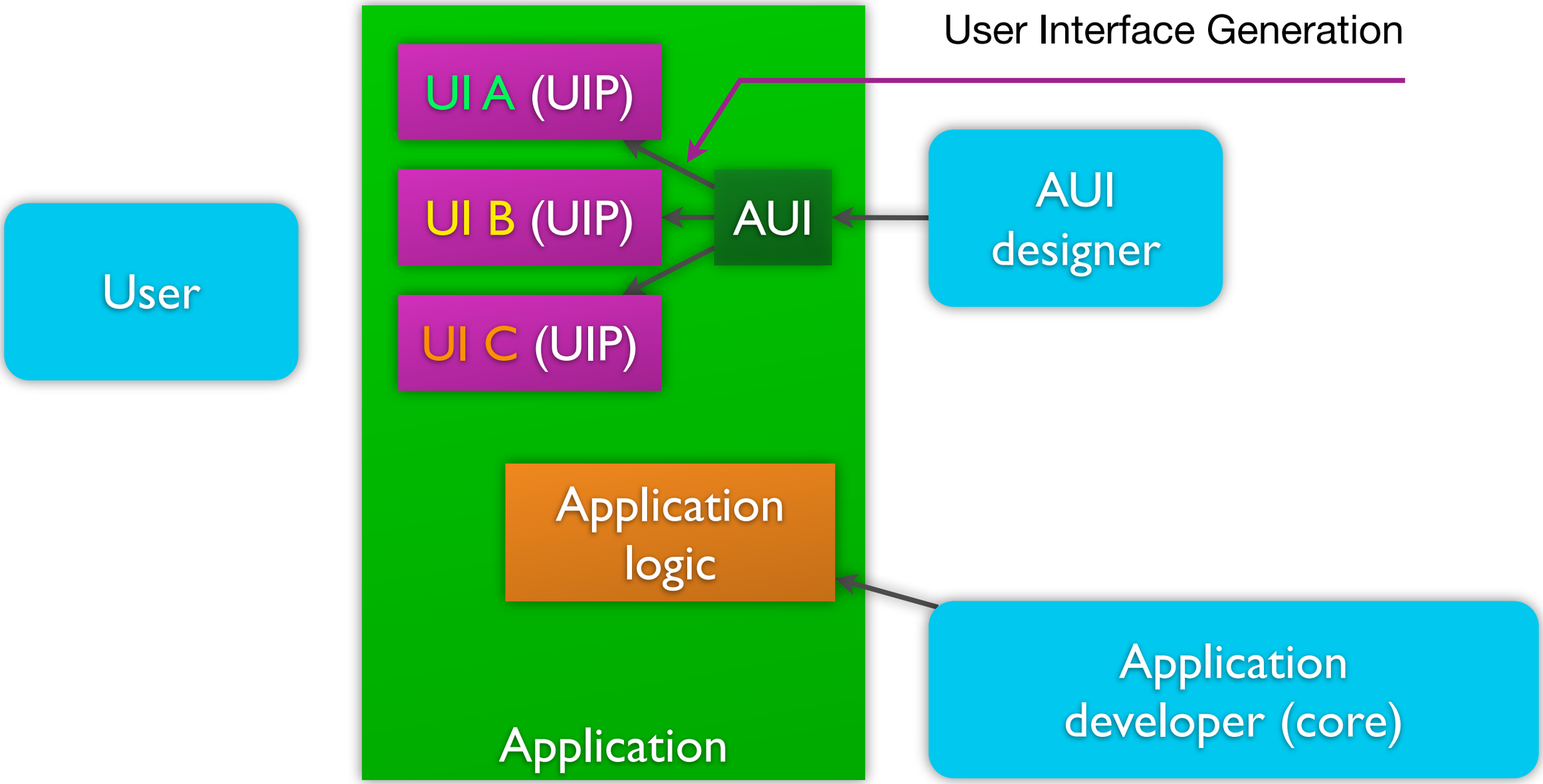
MOTIVATION | MULTI DEVICE - UIP



MOTIVATION | UI GENERATION



MOTIVATION | UI GENERATION



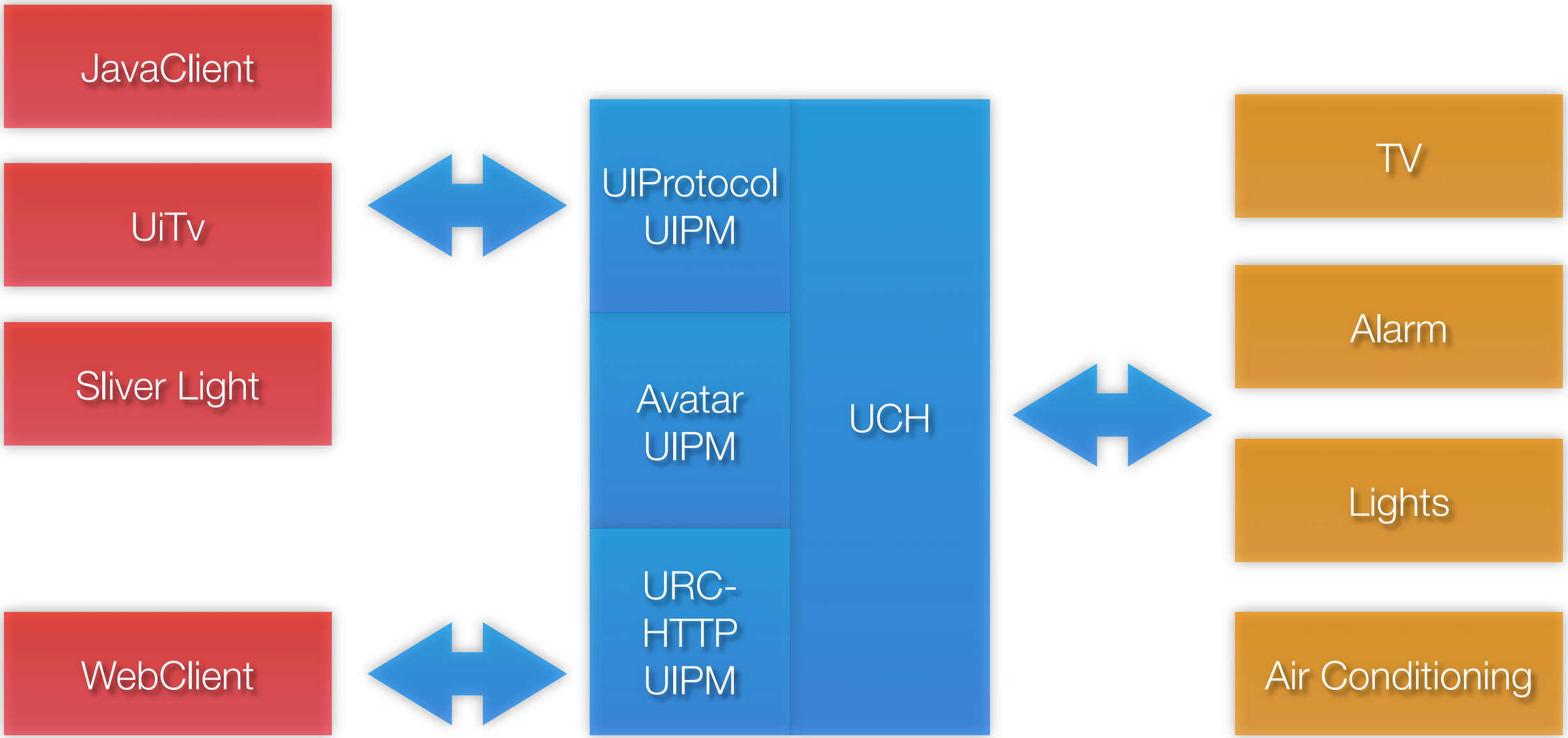
UIP | USER INTERFACE DELIVERY

- create single interface, deliver on any platform
- client-server
- simple development
- rich clients
  - animations, media, charts
- graceful degradation

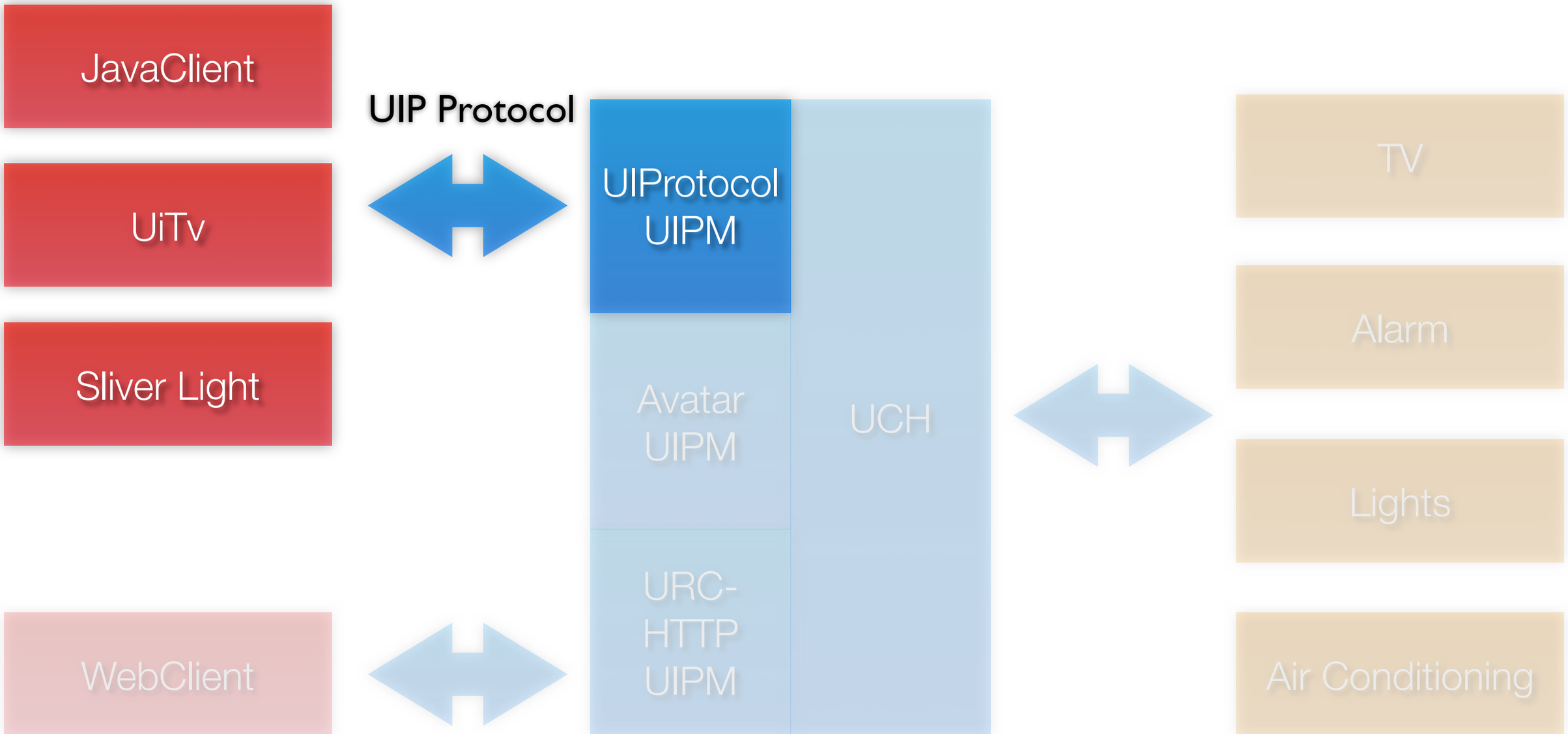
APPLICATION | i2home

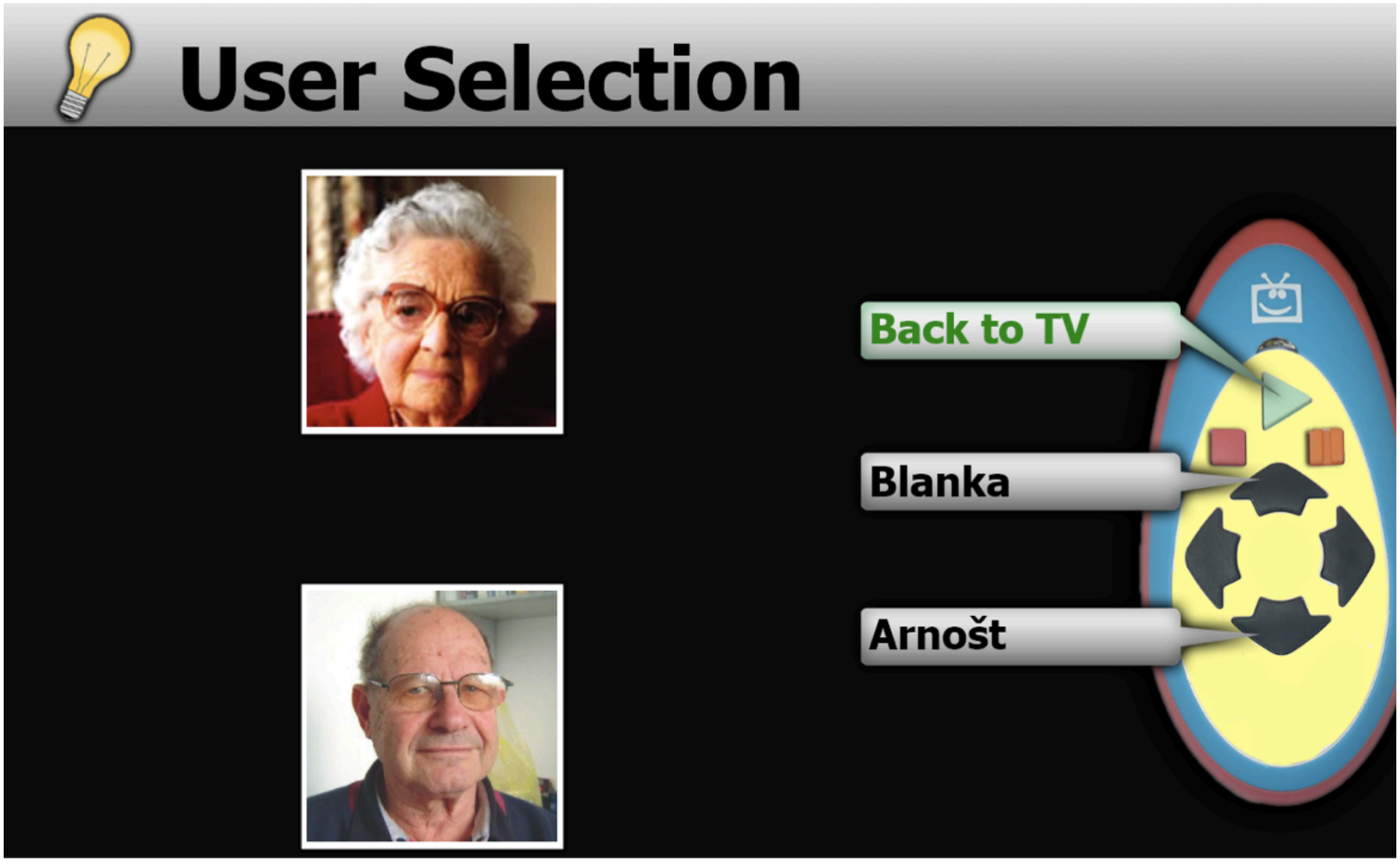
- FP6, EU Project, 9 partners, 3 years
- intuitive intelligent household for people with disabilities
- based on UCH
- UIP developed as a side effects
- **U**ser **C**entred **D**esign
- target groups: visually impaired, cognitively impaired, seniors

i2home | ARCHITECTURE

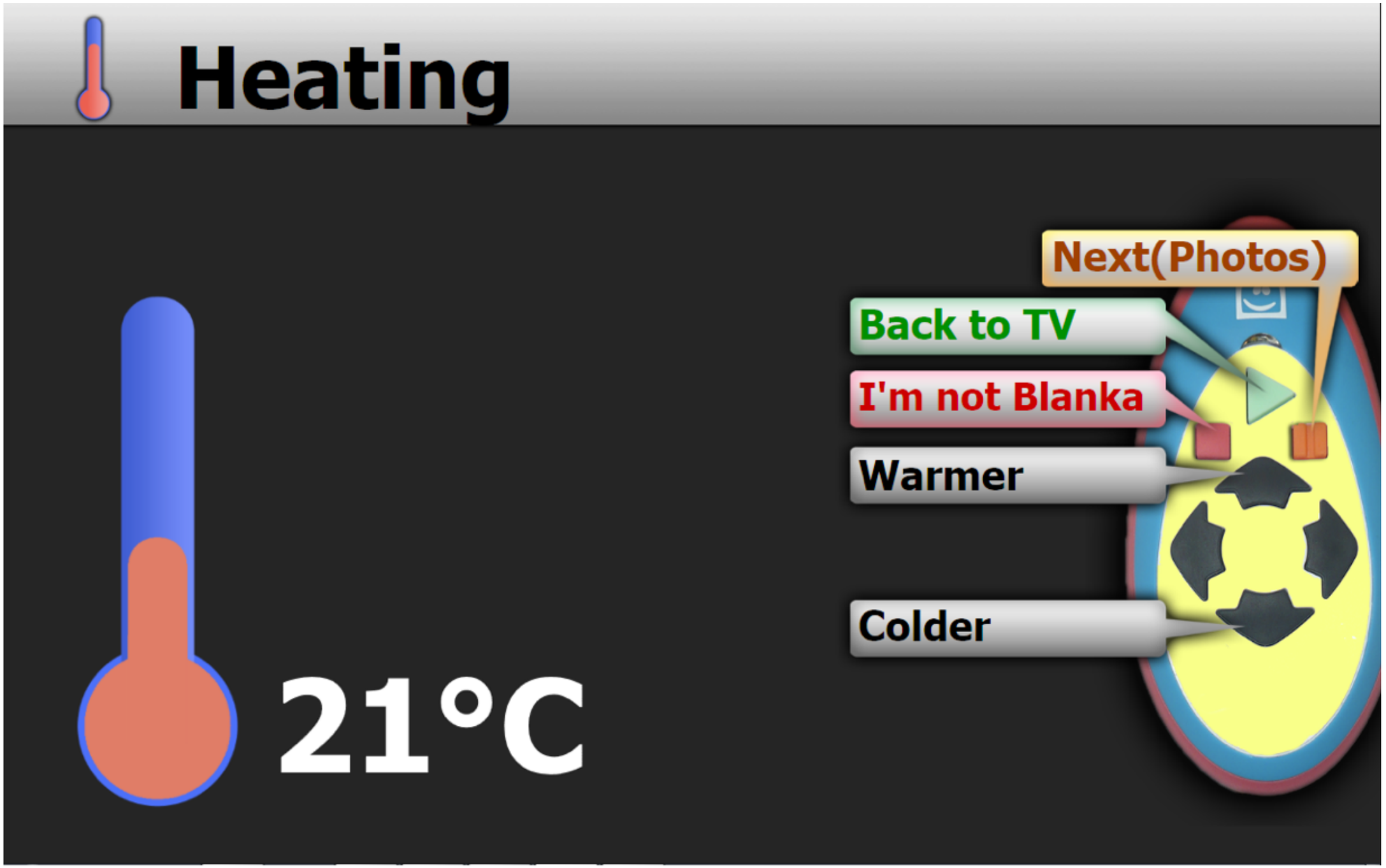


i2home | ARCHITECTURE

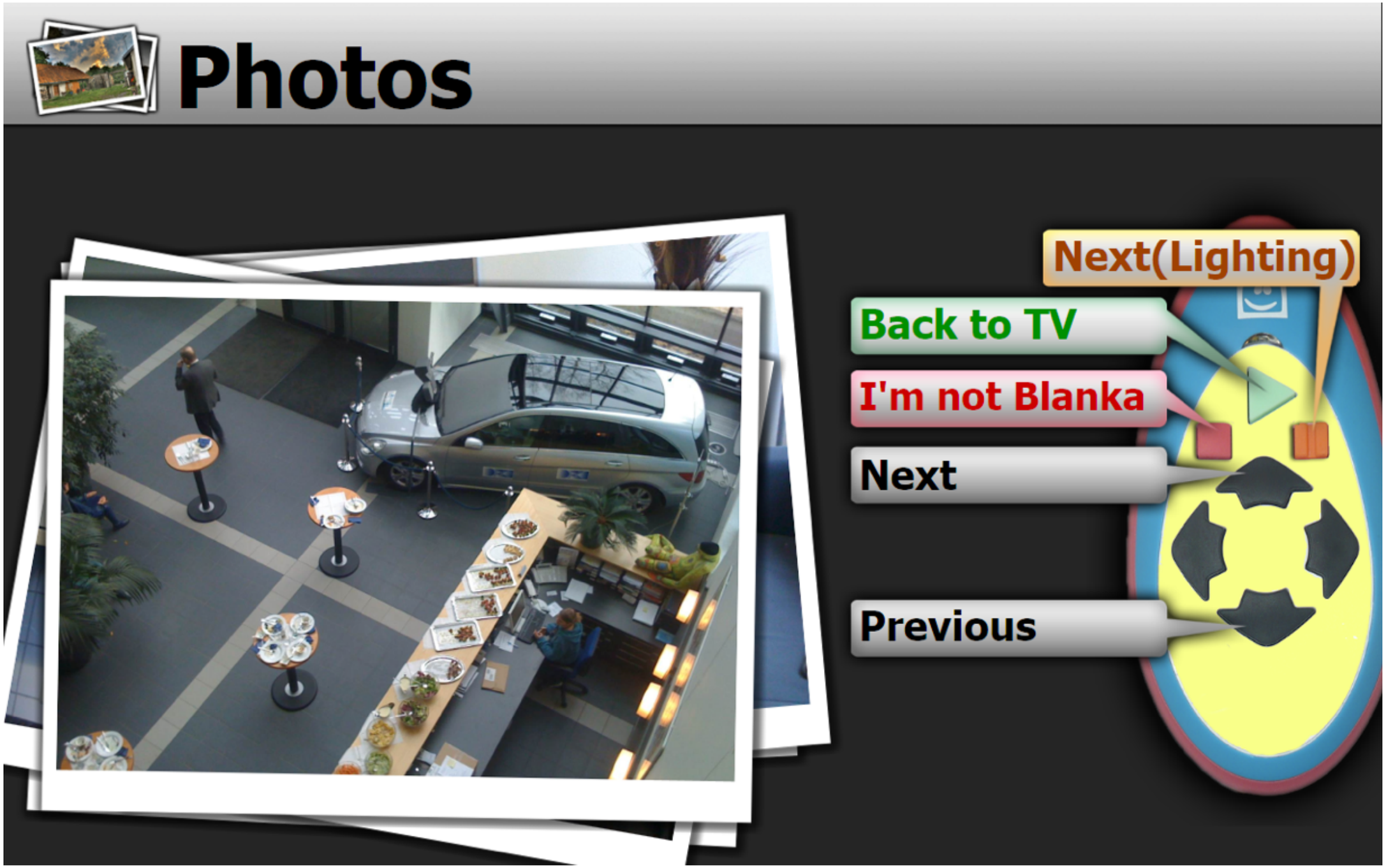



User Selection
Back to TV
Blanka
Arnošt

i2home | USER INTERFACES



i2home | USER INTERFACES

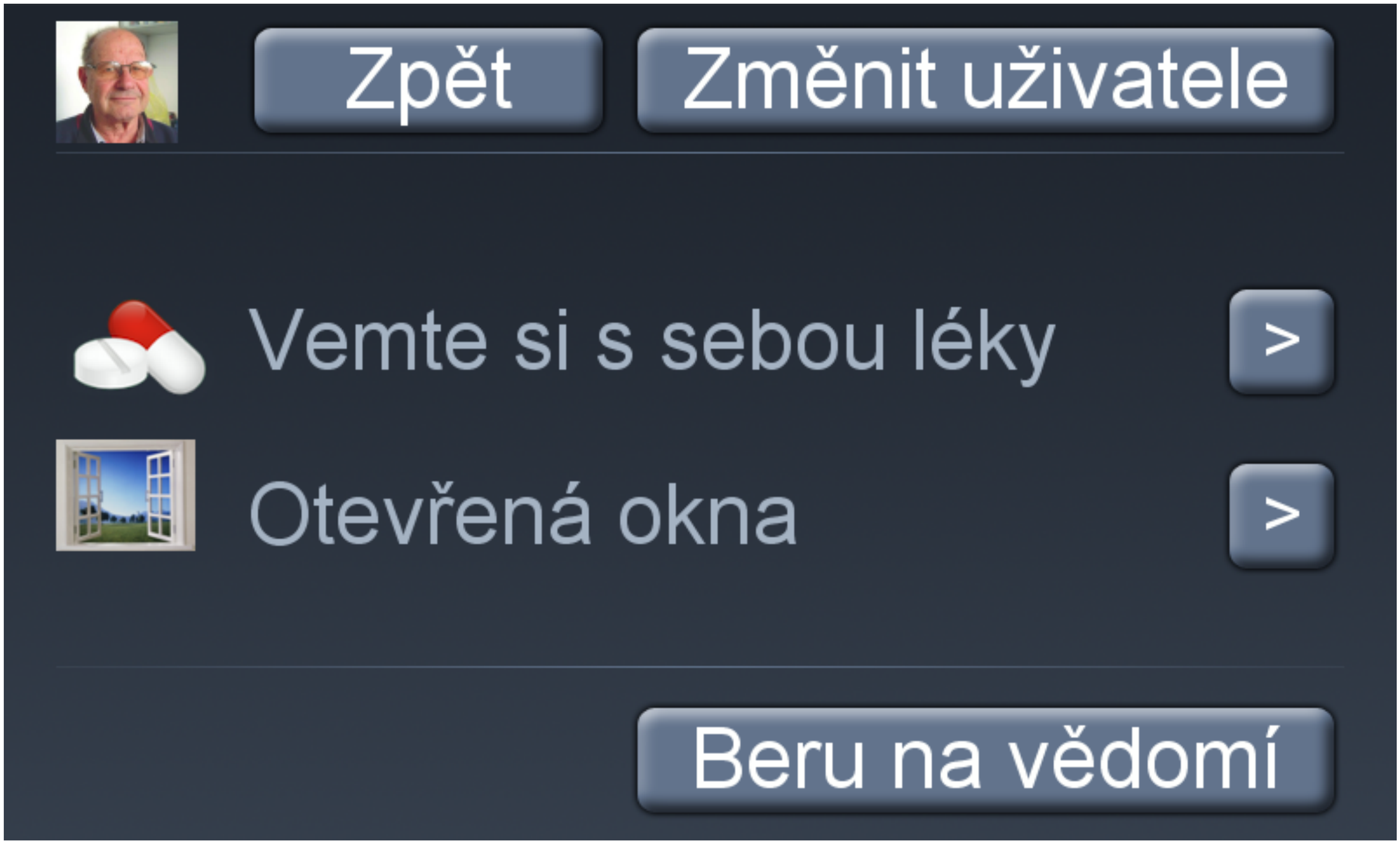


Now you can talk

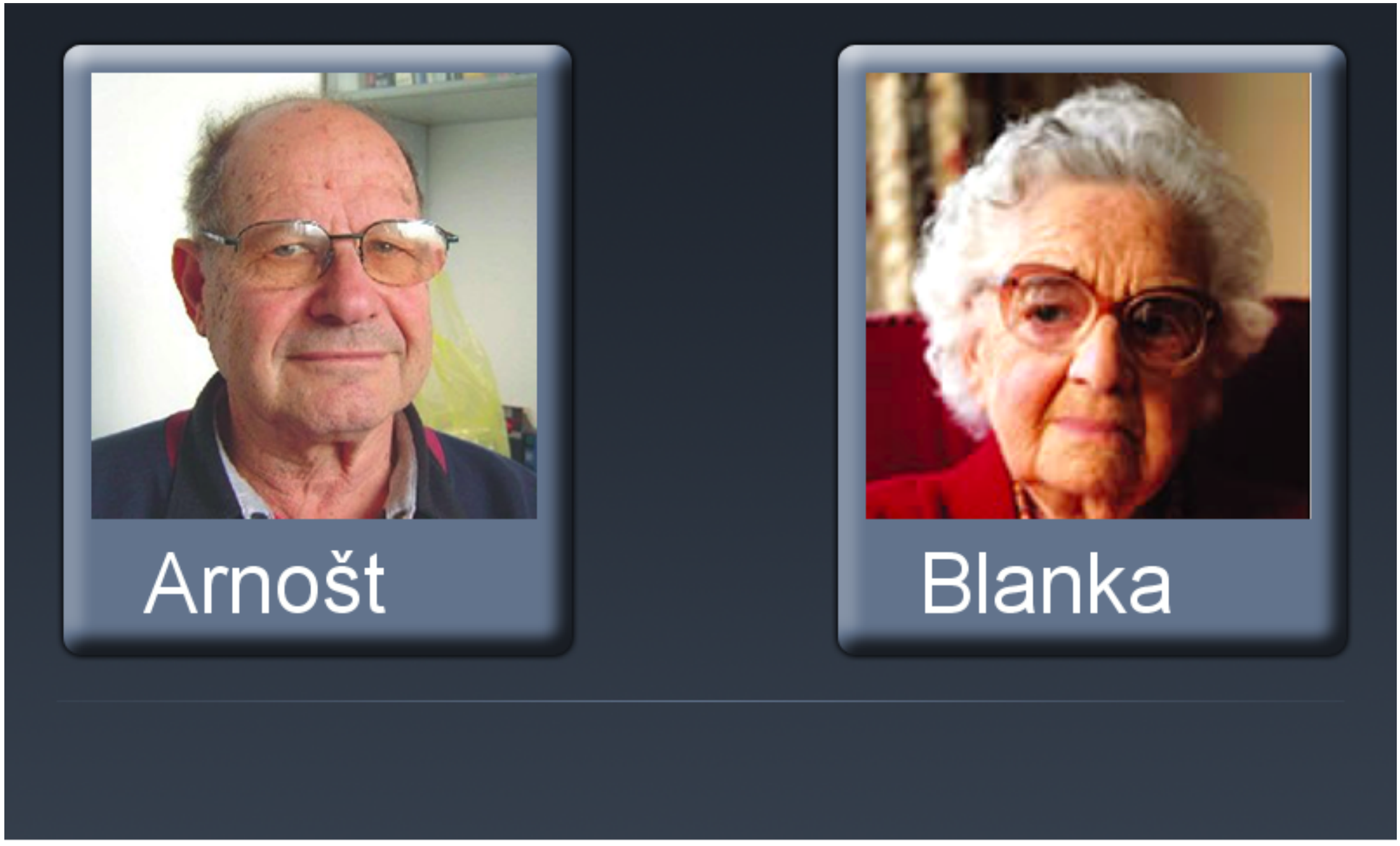
i2home | USER INTERFACES

Karel Vám posílá fotky
Předchozí
Další
Zvětšit
Přijmout
Odmítnout
Jiný uživatel

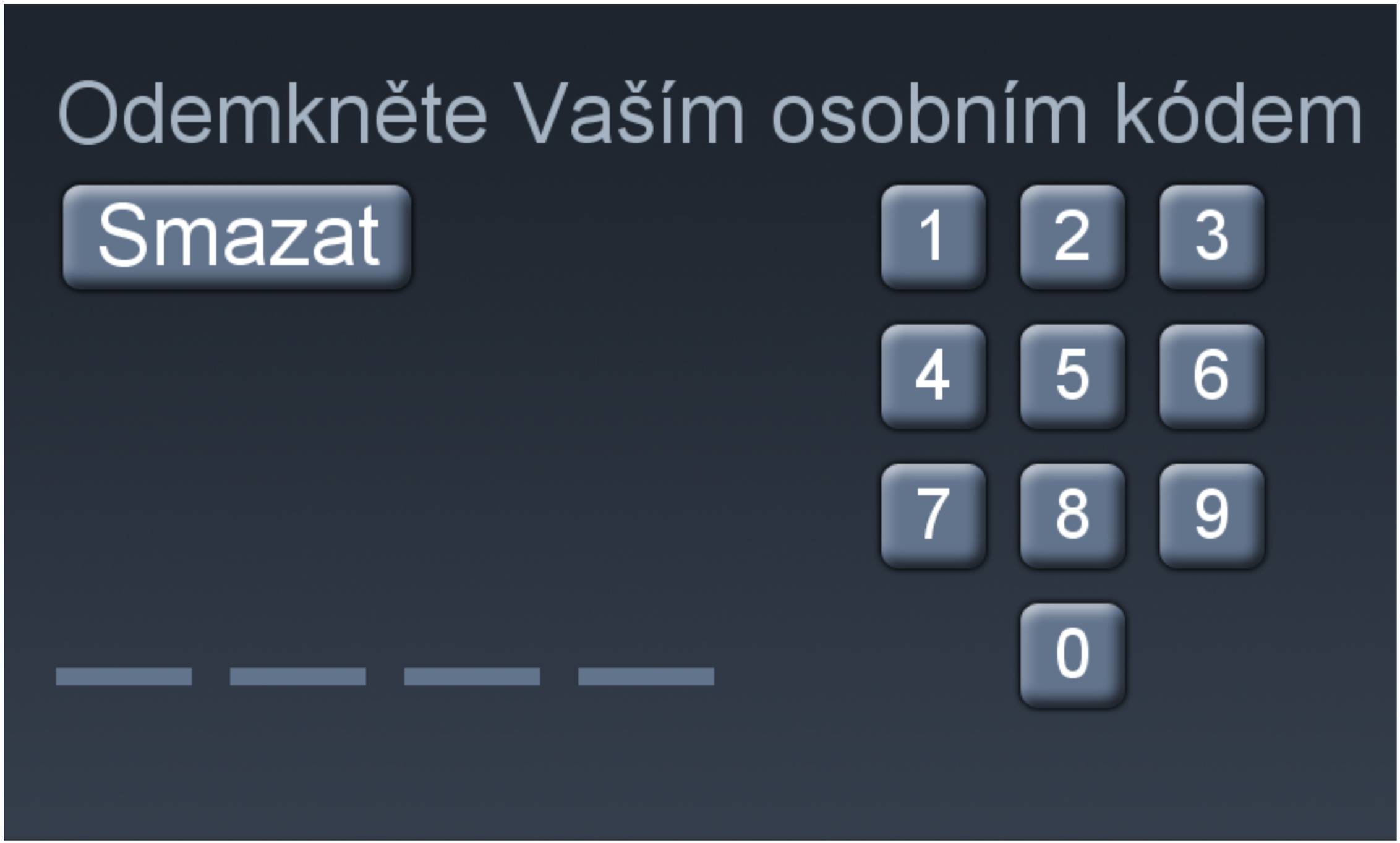
i2home | USER INTERFACES



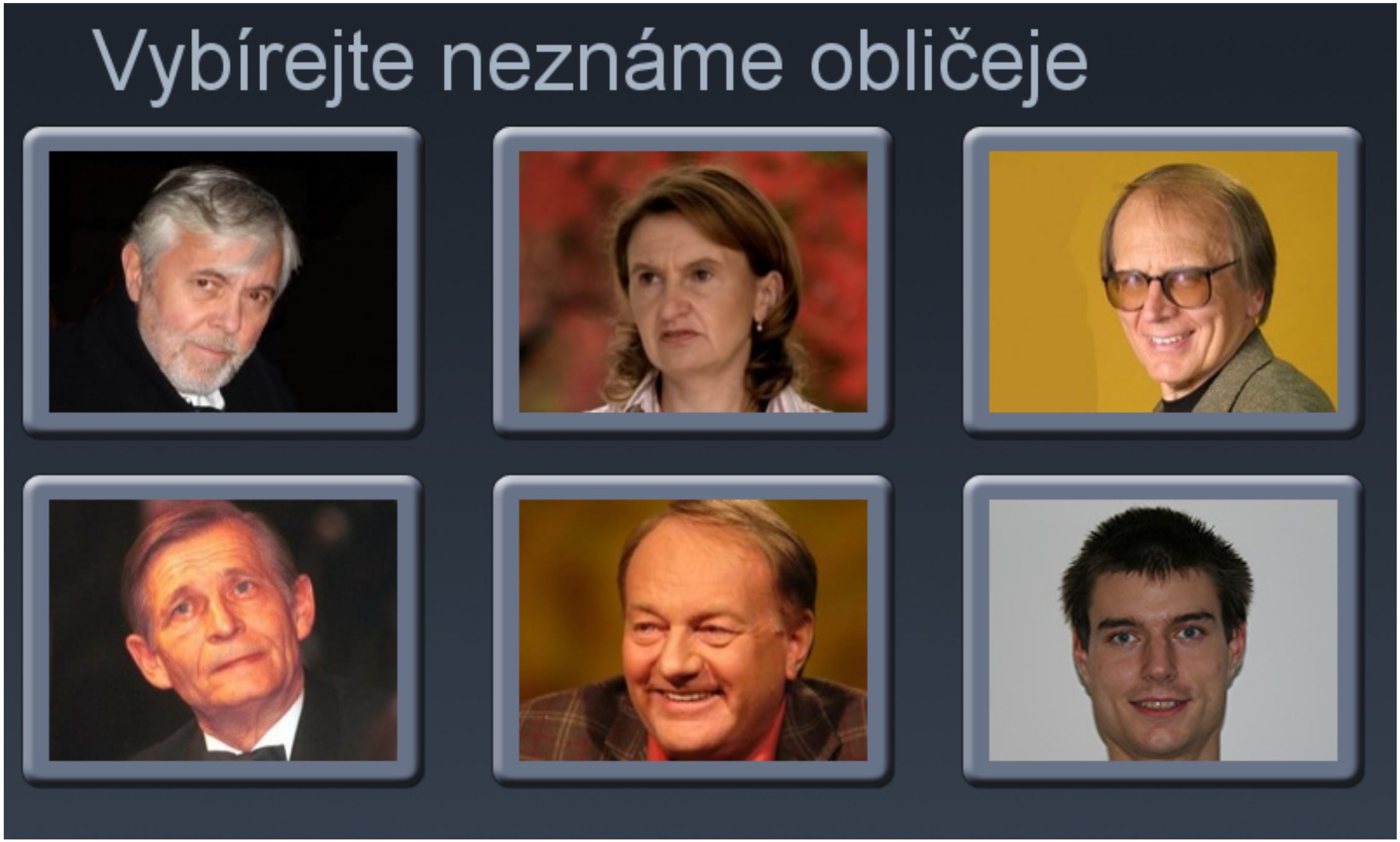
i2home | USER INTERFACES



i2home | USER INTERFACES



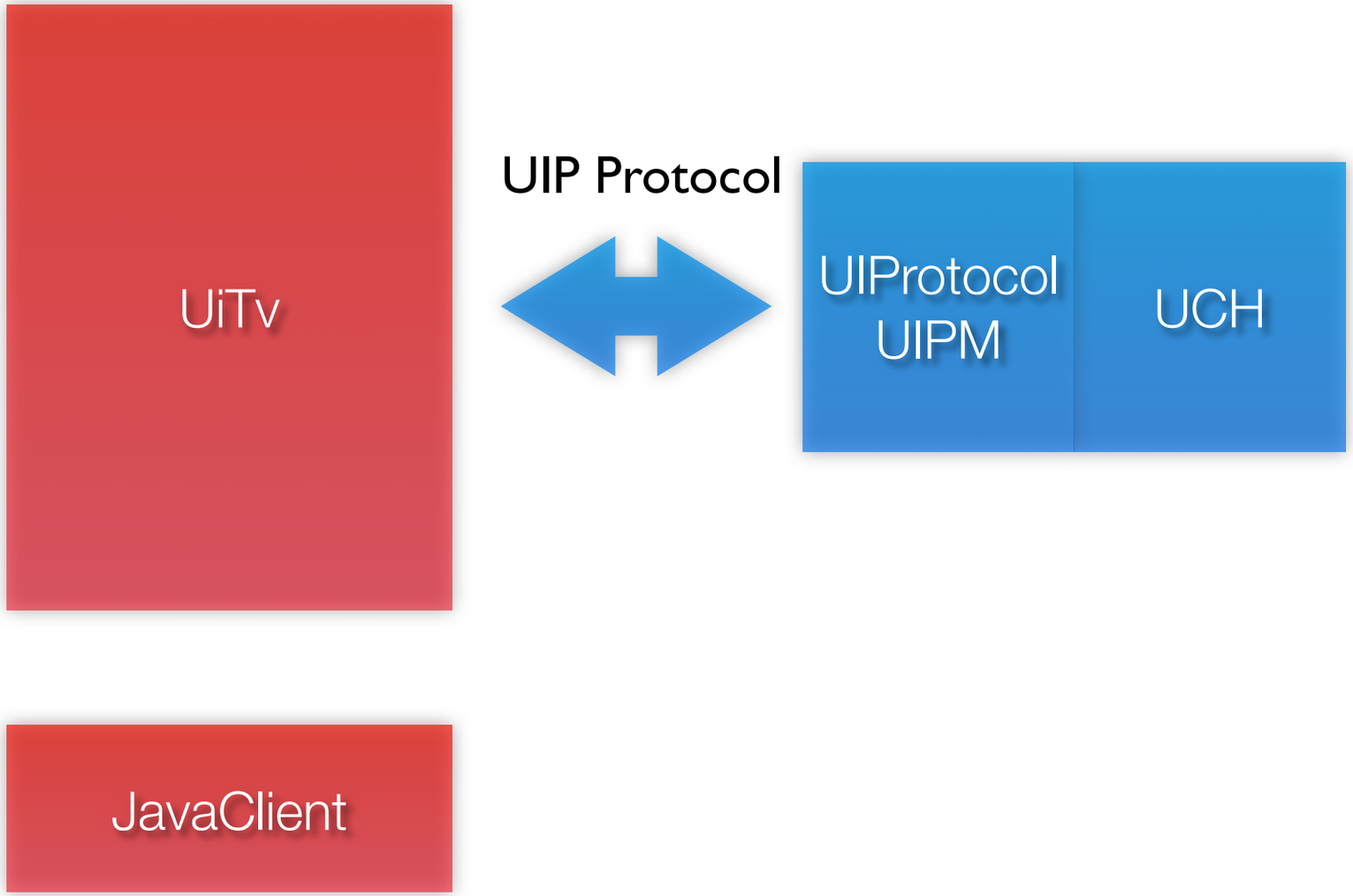
i2home | USER INTERFACES



APPLICATION | VITAL

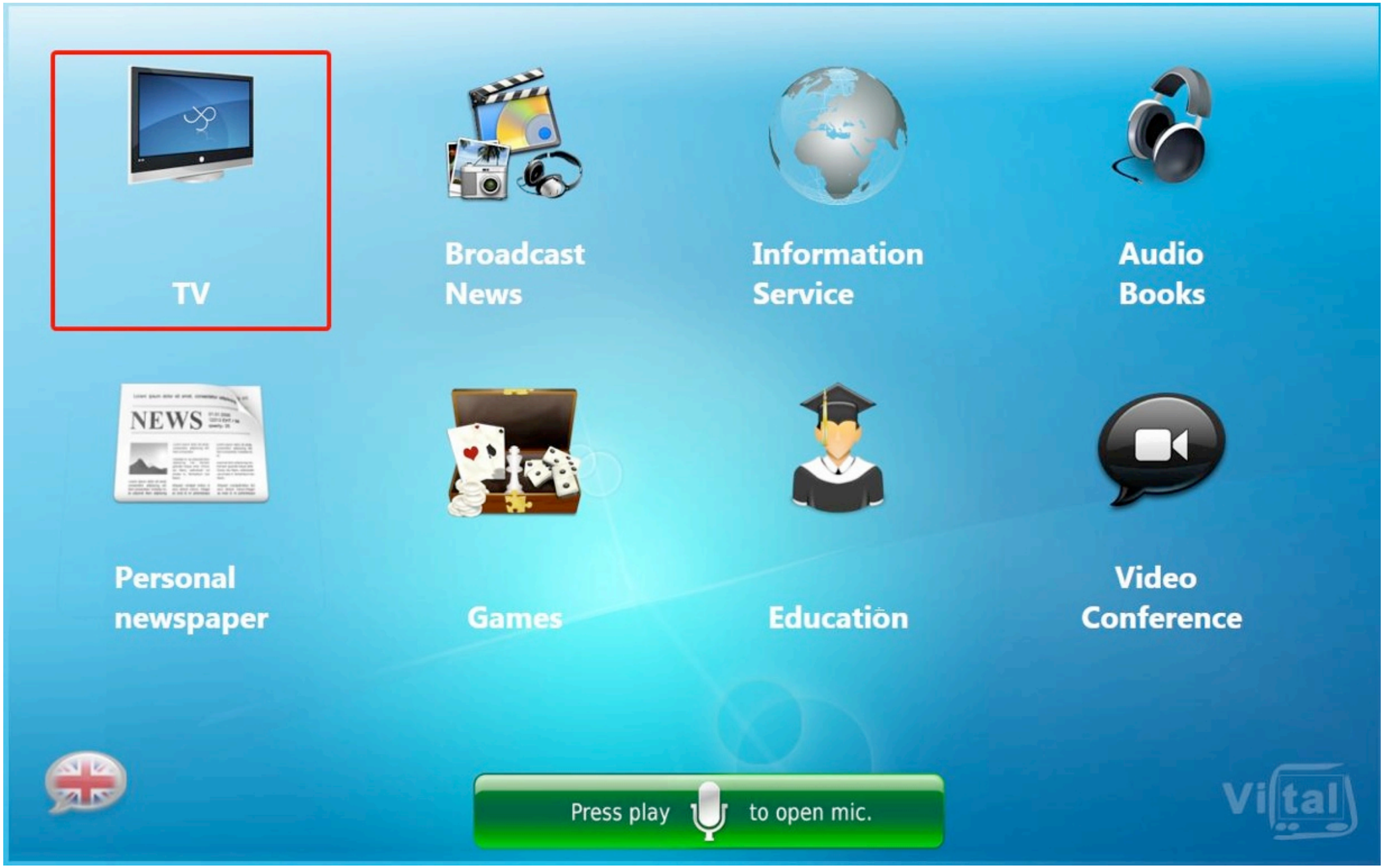
- FP6, EU Project, 11 partners, 3(2) years
- Vital Assistance For The Elderly
- based on UCH, UIP
- Smart TV
- voice integration
- target group: seniors

VITAL | ARCHITECTURE



VITAL | ARCHITECTURE

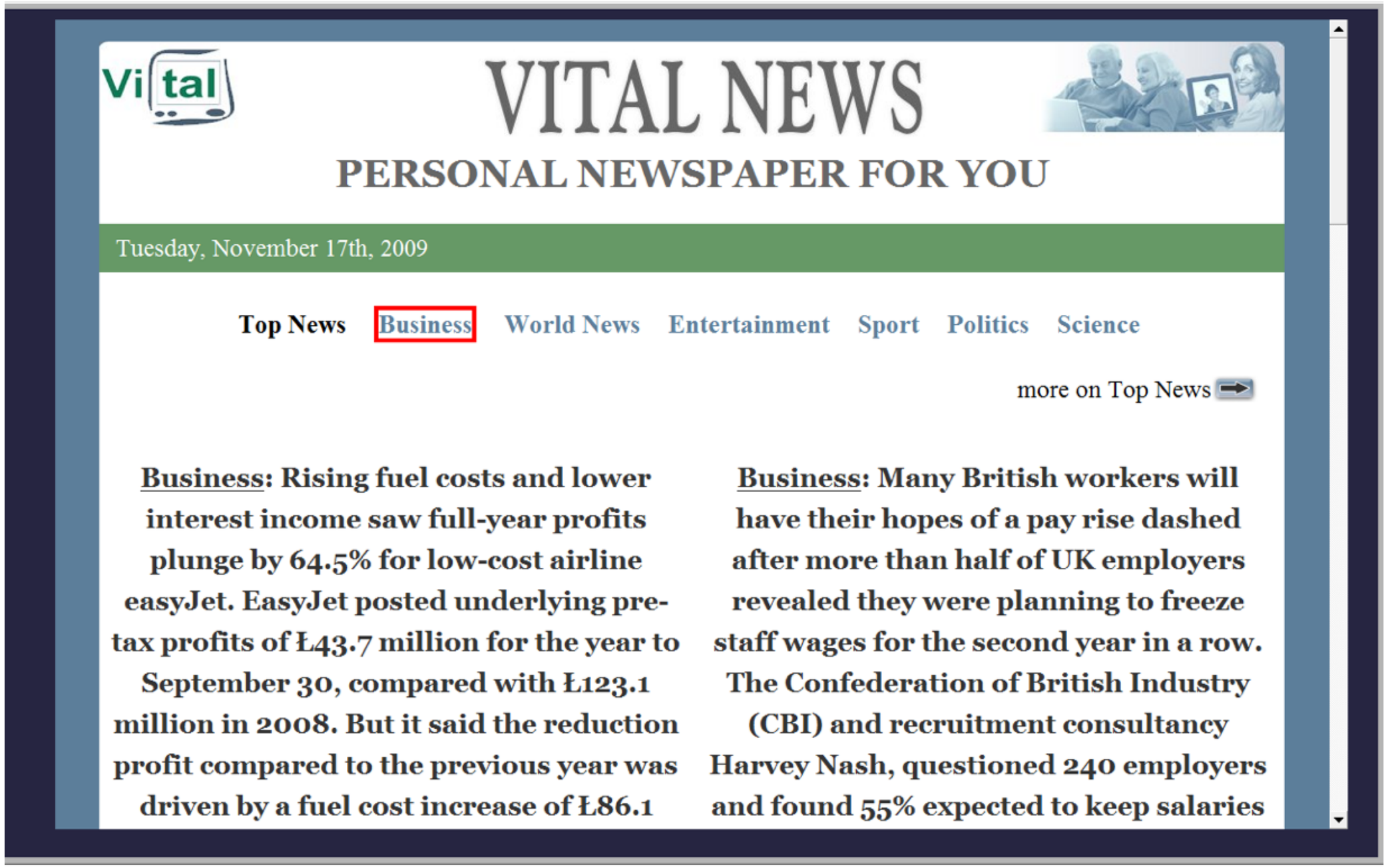
VITAL | USER INTERFACES



VITAL | USER INTERFACES

VITAL | USER INTERFACES

VITAL | USER INTERFACES



CONCLUSION

- i2home
  - URC as a ISO standard
  - UIP development
- VITAL
  - Complex user interfaces
  - UIP used as framework by other consortium members
- Open URC Alliance - CTU is a member

FUTURE WORK

- Automatic User Interface Generation
  - currently used for e-governance (forms)
- Integration of URC and Automatic UI generation
- New target user groups
  - visually impaired

Q & A

UIPROTOCOL.EU

Thank you for your attention.

macikmir@fel.cvut.cz