WiSHFUL

Wireless Software and Hardware platforms for Flexible and Unified radio and network controL
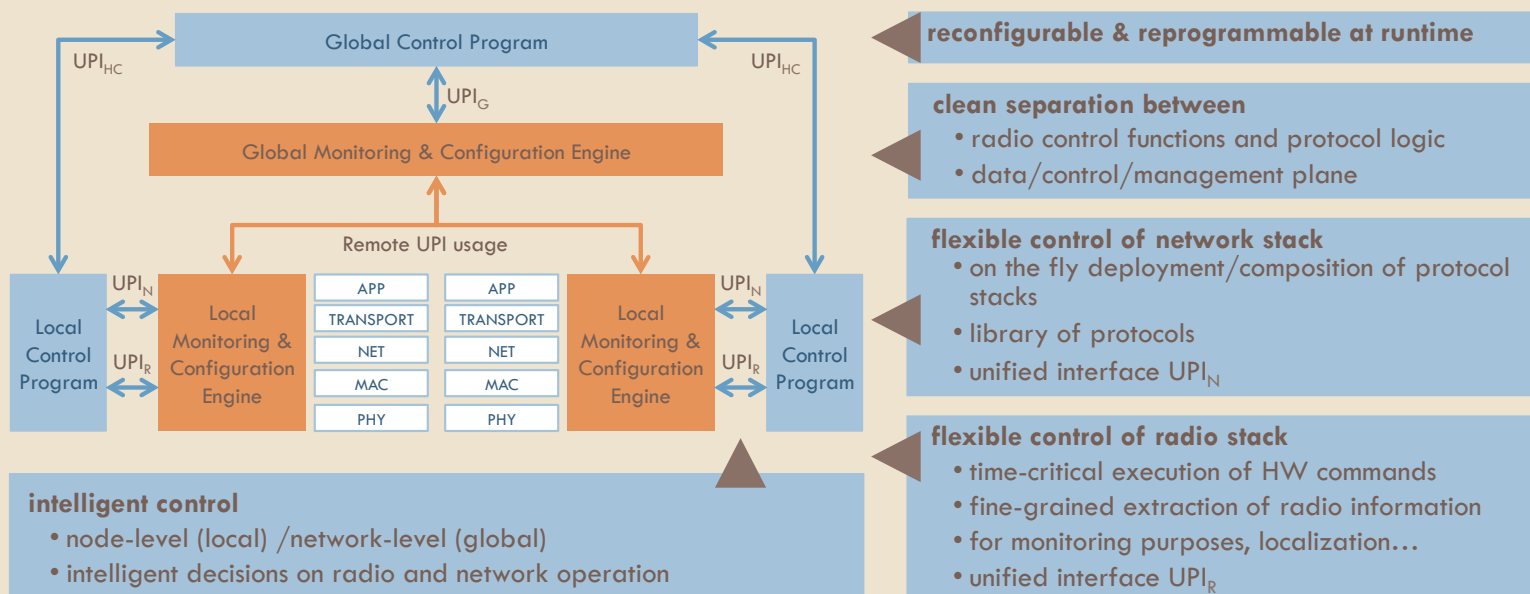
WiSHFUL OBJECTIVES

REDUCED THRESHOLD FOR EXPERIMENTATION

- by building open, flexible & adaptive **software platforms** with unified programming **interfaces** for **intelligent radio and network control**
- by offering these software platforms in wireless FIRE **test facilities** that follow the de facto standards for testbed interoperability set by the FED4FIRE project

INCREASED REALISM OF EXPERIMENTATION

- to offer **portable testbeds** that can be deployed at any location allowing validation in the real world and involving real users
- plug-and-play deployment
- wireless control channel
- remote management and support

WiSHFUL CONCEPT

Global Control Program

UPI_{HC} UPI_{HC}

UPI_G

Global Monitoring & Configuration Engine

Remote UPI usage

Local Control Program — UPI_N — Local Monitoring & Configuration Engine — APP / TRANSPORT / NET / MAC / PHY — APP / TRANSPORT / NET / MAC / PHY — Local Monitoring & Configuration Engine — UPI_N — Local Control Program

UPI_R UPI_R

reconfigurable & reprogrammable at runtime

clean separation between
- radio control functions and protocol logic
- data/control/management plane

flexible control of network stack
- on the fly deployment/composition of protocol stacks
- library of protocols
- unified interface UPI_N

flexible control of radio stack
- time-critical execution of HW commands
- fine-grained extraction of radio information
- for monitoring purposes, localization…
- unified interface UPI_R

intelligent control
- node-level (local) /network-level (global)
- intelligent decisions on radio and network operation

OPEN CALLS FOR EXTENSIONS

- **to attract third parties for extending WiSFHUL** with
  - new **software** functionality for the WiSHFUL software platforms
  - new **hardware** (e.g. mmWave, full duplex radio, smart antennas…)
    - compliant with WiSHUL software platforms, at least supporting the WiSHFUL unified programming interfaces
  - new **testbeds** (e.g. IoT, 5G…)
    - compliant with FED4FIRE tools and interfaces for testbed access and experiment control

OPEN CALLS FOR EXPERIMENTS

- **to attract third partners for experimentation**
  - validating innovative wireless solutions
  - using WiSHFUL software platforms and interfaces
  - using (portable) facilities and hardware supported by WiSHFUL

FIRST OPEN CALL: DECEMBER 2015

- open call for extensions and experiments
- targeted to (1) individuals and SMEs, (2) medium-size and large enterprises, and (3) academic researchers