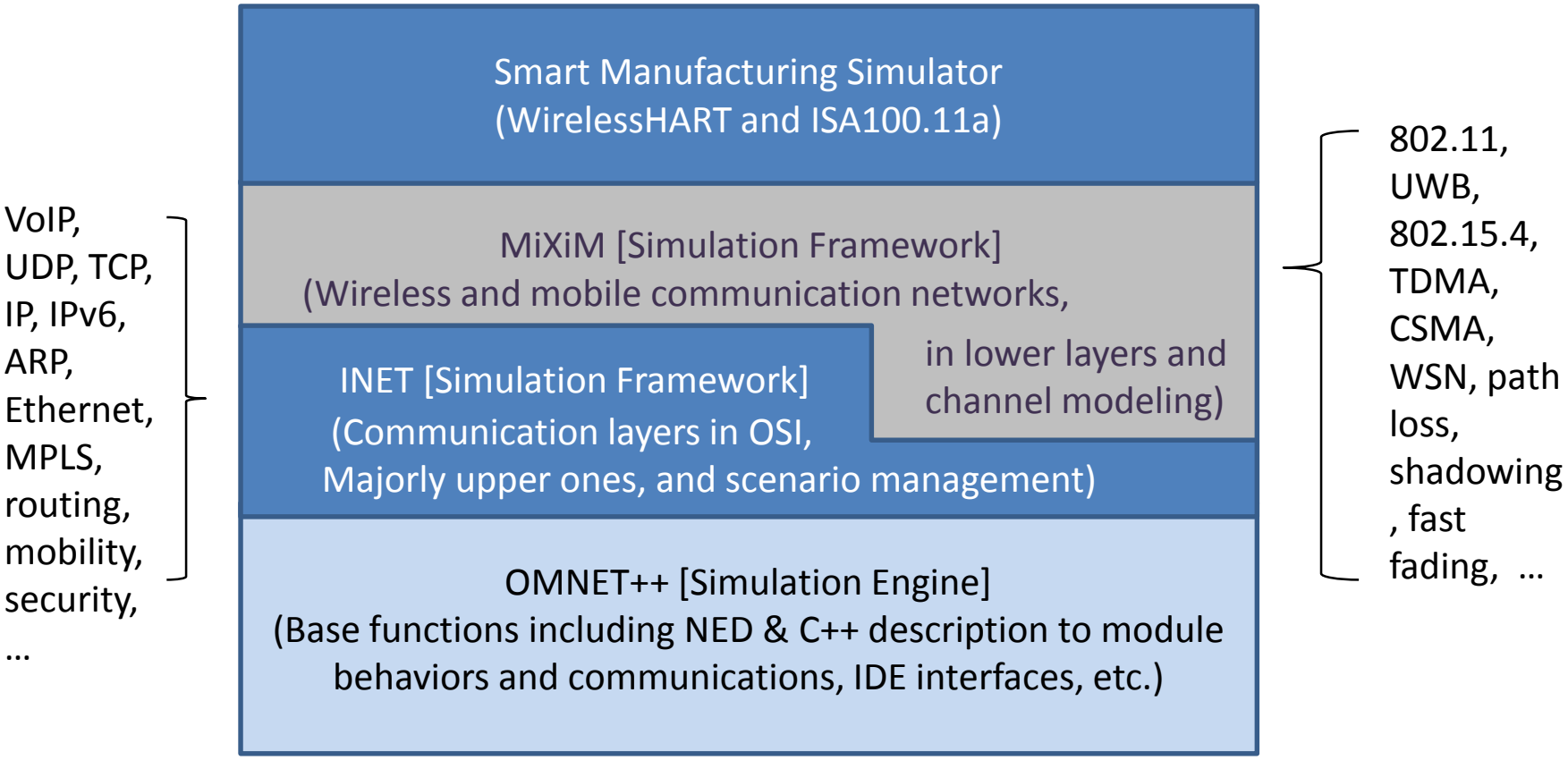
Simulator Installation Guide

Yongkang Liu

Outline

- Overview of simulator architecture
- Installing OMNET++
- Installing INET
- Installing MiXiM
- Importing simulator

Overview of Simulator Architecture



Version Log

Version	Platform (O, I, M)	Feature
0.1 (2014.06)	(4.4.1, 2.2, 2.3)	Basic MAC and PHY
0.2 (2014.07)	(4.5, 2.4, 2.3)	Ported to new platform
1.0 (2014.08)	(4.4.1, 2.2, 2.3)	Upgraded to support demo

Installation order

- Simulator package includes INET and MiXiM installation files
- OMNET++ → INET → MiXiM
- Version Record
  - Current stable version of Simulator is built on OMNET++ 4.4.1 + INET 2.2 + MiXiM 2.3
    - OMNET++: V 4.4.1 (2014.03) →? 4.5 (2014.07)
    - INET: V 2.2(2013.08) →? 2.4 (2014.06)
    - MiXiM: V 2.3 (2013.03)

Installing OMNET++

- Download OMNET++ package from website (URL: http://www.omnetpp.org/omnetpp/cat_view/17-downloads/1-omnet-releases)
- Windows version contains source + IDE + MinGW
- Unpack the package in a root drive, the name of which does not have space
- Configure and build OMNET++ following the Install Guide in the package's doc folder
- Open OMNET++ IDE and create your own workspace folder for the following projects

Installing INET

- Verify OMNET++ working correctly
- Download the INET archived file with the Simulator
- Move the zip file into the workspace folder under OMNET++
- Import INET: open IDE and select “File → import → general → existing projects into workspace → next → select archive file → browse to INET archive file →open → select INET → finish”
- Configure and build INET
  - Option 1: in IDE (recommended, may take a few minutes)
    - Build the INET project in IDE
  - Option 2: in MinGW
    - Enter INET folder
    - Create makefiles: make makefiles
    - Build: make (Hint: The first time building may encounter errors. Then, ignore the error, and build it again)

Installing MiXiM

- Verify OMNET++ and INET working correctly
- Download the MiXiM archived file with the Simulator
- Move the zip file into the workspace folder under OMNET++
- Import INET: open IDE and select “File → import → general → existing projects into workspace → next → select archive file → browse to INET archive file →open → select INET → finish”
- Configure and build MiXiM
  - Option 1: in IDE (recommended)
    - Build the MiXiM project in IDE (may take a few minutes)
  - Option 2: in MinGW (works in V <= 4.4.1, not compatible with 4.5)
    - Enter MiXiM folder
    - Create makefiles: make makefiles
    - Build: make (Hint: The first time building may encounter errors. Then, ignore the error, and build it again)

Run the Simulator

- Currently, the demo of the simulator is incorporated into MiXiM as one example (“baseNetwork”)
- Some supporting modules (in upper layers and scenario management) have also been included in INET

Modifications in INET and MiXiM

- Different versions of simulator incorporate different sets of codes, but each runs independently. Follow the code set in each backup folder
- E.g., Version 2014-07-29
- INET modules
  - Mobility: ConstSpeedMobility (.ned/.h/.cc)
- MiXiM modules
  - Message: MiximAirFrame (delete .h/.cc, rebuild)
  - basePhy (.ned/.h/.cc)
  - BaseDecider, Decider802154Narrow (.h/.cc)
  - LMacLayer (.ned/.h/.cc)
  - Replace all files in examples/baseNetwork