University Modeler Base Product & Add-Ons

- Users start with the base Modeler Wireless Suite and add specific models/modules to tailor their purchase
- Model/Module Add-on Options include:
  - 802.16 (WiMAX) Model
  - IPv6 for R&D Specialized Model
  - LTE Specialized Model
  - MPLS Specialized Model
  - Shared Code Module
  - System-in-the-Loop Module
  - UTMS Specialized Model
Modeler Wireless Suite
Modeler Wireless Suite [MDW]

- Includes Modeler [MD], Simulation Runtime [SRS] and the Wireless [WM] and Terrain Modeling [TMM] modules

- Example use cases:
  - Find out the optimum combination of TCP parameters for specific traffic and network conditions
  - Study the performance of MANET routing protocols for different scenarios
  - Develop a new adaptive data rate algorithm for hybrid 802.11g/802.11n networks
  - Develop a new wireless protocol, such as a wireless mesh sensor network protocol
Modules

- This section describes the modules and specialized models available for Modeler
- All modules can be added to the Modeler Wireless Suite base package, although there may be some prerequisites
802.16 (WiMAX) Specialized Model [802.16]

- A detailed and high fidelity model of the WiMAX protocol

- Example use cases:
  - Study a hybrid 802.11/ 802.16 network
  - Develop modifications to the WiMAX protocol for use in smart grid deployments
IPv6 Specialized Model [IPV6]

- A detailed and high fidelity model of IPv6
- Example use cases:
  - Study a hybrid IPv4/IPv6 network
  - Study OSPFv3 routing in an MANET IPv6 network
  - Develop modifications to IPv6
LTE Specialized Model [LTE]

- A detailed and high fidelity model of LTE based on 3GPP’s release 8 and release 9 specifications

- Example use cases:
  - Determine optimal LTE settings for a given network
  - Implement and study proprietary scheduling and frame generation algorithms
  - Study tactical military networks incorporating LTE
MPLS Specialized Model [MPLS]

- A detailed and high fidelity model of MPLS
- Example use cases:
  - Study the effect of introducing MPLS into an existing ATM network
  - Conduct traffic engineering studies using dynamic LSPs with explicit or CSPF routes
Shared Code Module [SHRCD]

- Makes it easier to share code between a model and a real device
- Write code once and run it on multiple platforms
- Example use cases:
  - Write a Linux application and test it both in the live environment or in Modeler
  - Allows someone familiar with socket programming but not with Modeler to develop protocol models faster
System-in-the-Loop Module [SITLM]

- Provides real packet capture, translation, and transmission
- Allows models to communicate with live equipment
- System-in-the-loop Unlimited [SITLMU] allows unlimited simulations to use the SITL module at once
- Example use cases:
  - Connect a simulated OSPF network to a real router and study the performance of the end-to-end system
  - Run real applications over an in-development network to see how the real applications will perform
UMTS Specialized Model [UMTS]

- A detailed and high fidelity model of UMTS based on 3GPP’s release 99, release 4 and release 5 specifications

- Example use cases:
  - Investigate the effects of hard, soft and softer handovers on application performance
  - Study a hybrid LTE/UMTS network (requires LTE specialized model)