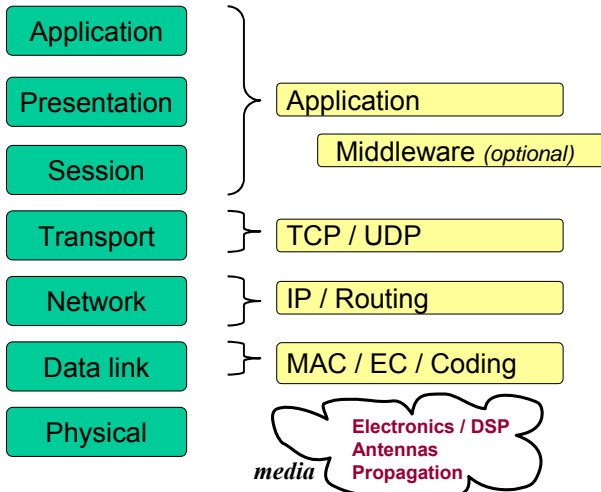


SPlug™



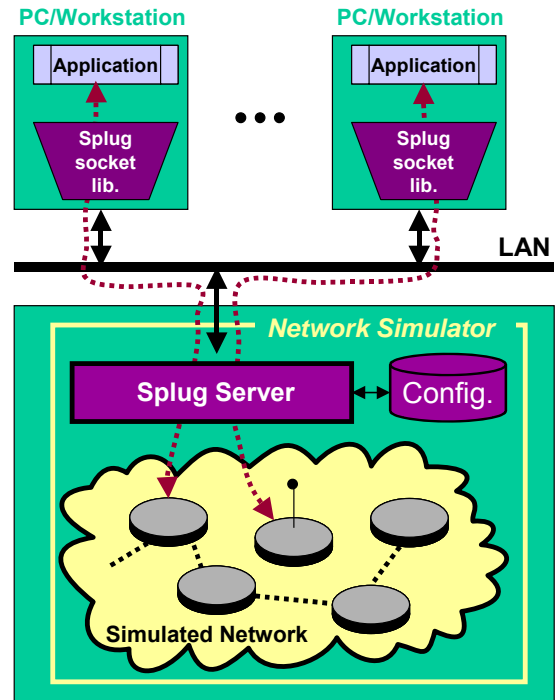
OSI and Internet Protocol Stack

OpCoast is developing a new simulation technology that enables the projection of actual networked applications onto nodes of a network simulation. We call the technology **Simulation Plug-In (SPlug)**. Unlike emulation approaches, in which a simulator or rule-based applications emulate undesired wide-area network conditions on a local area network, our new approach will enable full interaction between actual applications and simulated models. Via the patent-pending SPlug technology, application code(s) can be virtually translated at the packet level onto simulated nodes—that is they interact with other applications or models as though they are resident on a fully functioning network. This will enable *for the first time*,

qualitative and quantitative assessment of full-scale, reactive network applications spanning client/servers, database servers, mobile agents, IP-based telephony/video delivery, middleware and military applications (e.g. C4ISR) under realistic networking conditions.

Many existing analyses extract ‘typical application loads’ which are then presented to a network level simulator for assessment. But use of such a static communication load completely fails to capture and analyze how the network layers react to each other. Our SPlug technology, now in development, permits ‘injection’ of an actual networked application code onto a node in a network simulator with bidirectional data transfer. This enables the qualitative and quantitative assessments of distributed applications and networking layers as they *react* to each other. For the first time, this technology ‘closes the gap’ by providing a ‘full-stack’ simulation capability spanning media and propagation levels to application levels.

Since network address assignment is a ‘free-variable’ in SPlug and due to the packet re-writing used in the method, our approach permits the use of realistic address spaces (some emulation techniques are not capable of doing so). Network addresses and ports *can* now be part of the message data and handled as part of the simulations. This feature is essential for mobile agent and other applications.



PC/Workstation
SPlug Operation



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