

Application Interface Development

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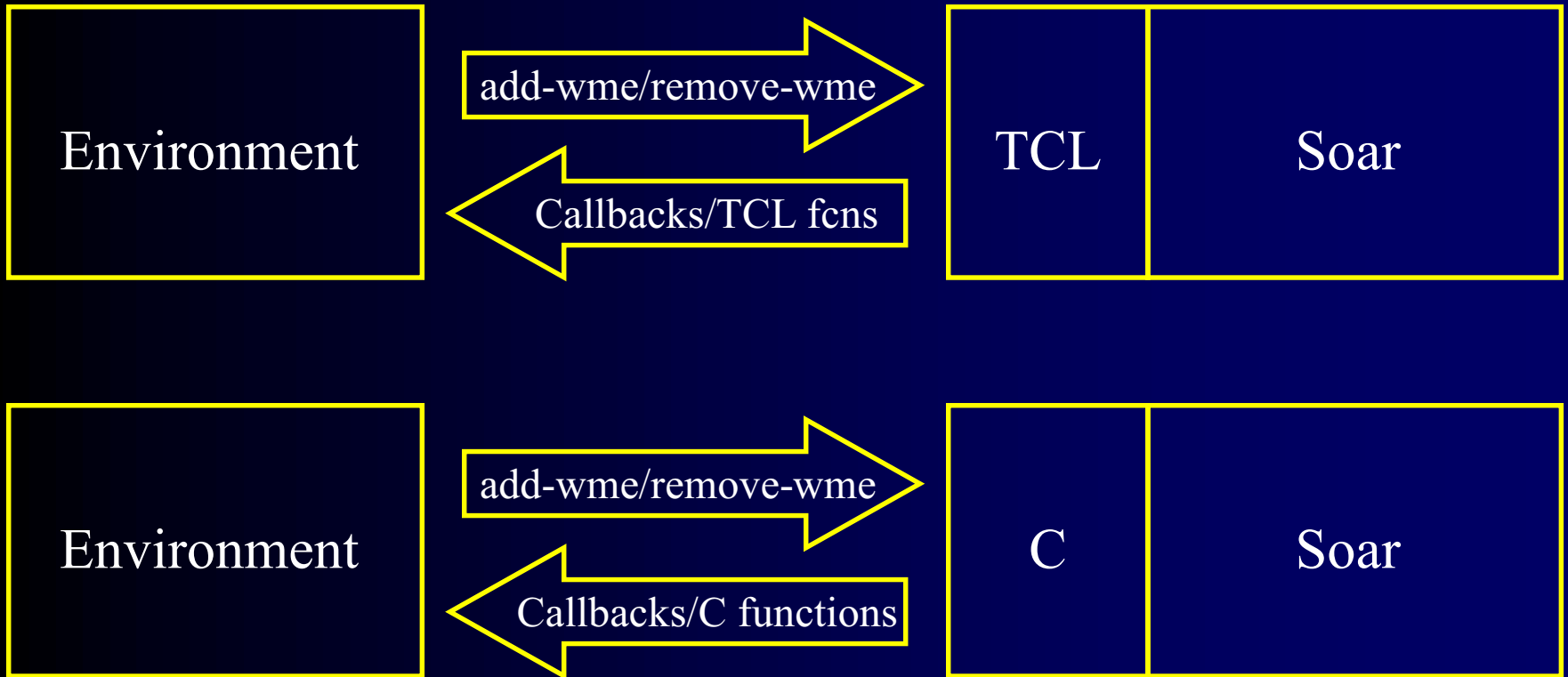
Mike van Lent

Karen Coulter

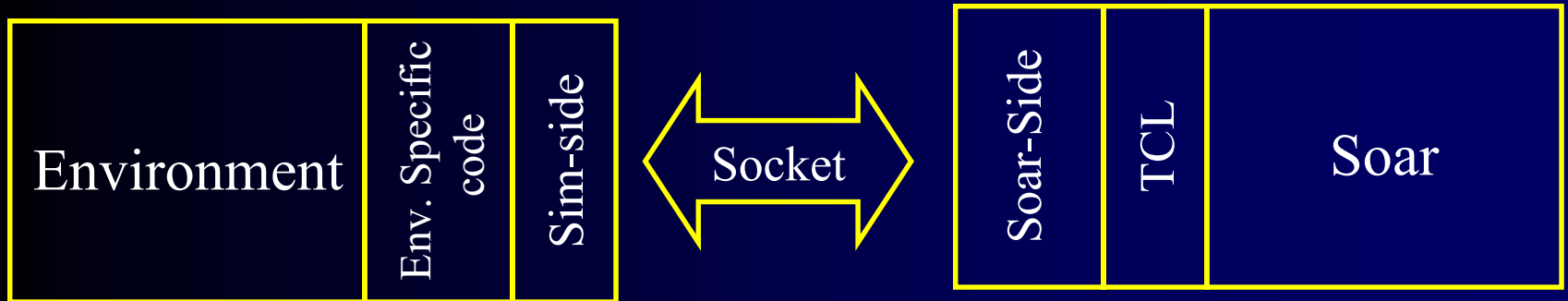
Marina del Rey

Saturday, May 13, 2000

Standard Soar Interface



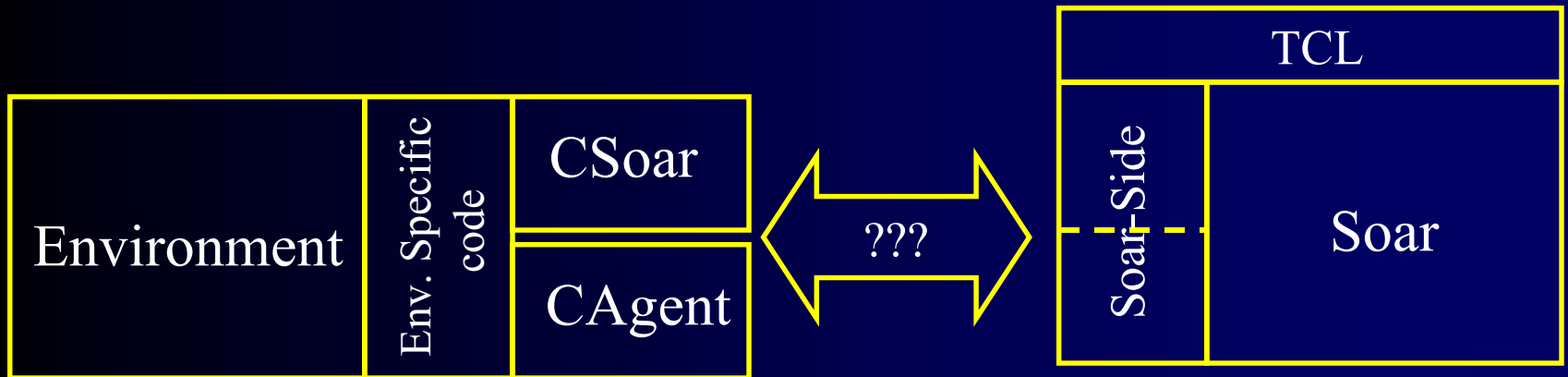
SocketIO Interface



Problems with SocketIO

- SocketIO is unsupported and undocumented
 - Only Kurt knows how it works
- SocketIO is slow
- SocketIO only supports socket interface
 - Requires two machines
- SocketIO only supports version 8.something
- SocketIO requires TCL
- SocketIO isn't programmer friendly
 - doesn't handle WMEs well
 - output-link commands aren't handled well
 - error codes are effectively meaningless

SGIO Interface



Advantages of SGIO

- SGIO is faster than SocketIO
 - SGIO doesn't call Soar kernel functions through TCL
 - SGIO can communicate with TCL independently
- SGIO uses C++ abstraction more effectively
 - to better support different forms of communication
 - C function calls, dll, file based, socket (still),....
 - to better support different versions of Soar
 - Very difficult in SocketIO
 - to better support multiple agents
 - Untested in SocketIO
- SGIO doesn't have multi-threading problems
 - SGIO is thread safe (although Soar isn't)

SGIO is programmer friendly

- SGIO handles WME management
 - keeps track of timetags (for remove-wme) automatically
 - recursively removes sub-trees
 - only sends changes
- SGIO handles output-link commands better
 - output-link wmes are translated into C++ function objects
 - will handle Tank-Soar style output feedback
 - different agents can have different output commands
- SGIO has a unified error reporting mechanism
 - meaningful names for errors
- Documentation is ahead of coding

Nuggets and Coal

- Nuggets
 - SGIO is SocketIO done right and extensible
 - Provides support for wide range of interface styles
 - SocketIO only supports one style of interface
 - SGIO betters takes advantage of concurrent research
 - Soar-lite, Soar API
- Coal
 - SGIO isn't finished
 - Framework has been designed
 - Documentation is almost done
 - Programming hasn't been done (work is starting this summer)
 - Steve is leaving (but we learned a lot when Kurt left)