



T H E C O M P L E T E S O C K E T

OCP-IP provides the standard TLM Socket

Mark Burton
GreenSocs

(Chair of the OCP-IP System Level Design working group)

Standards are key

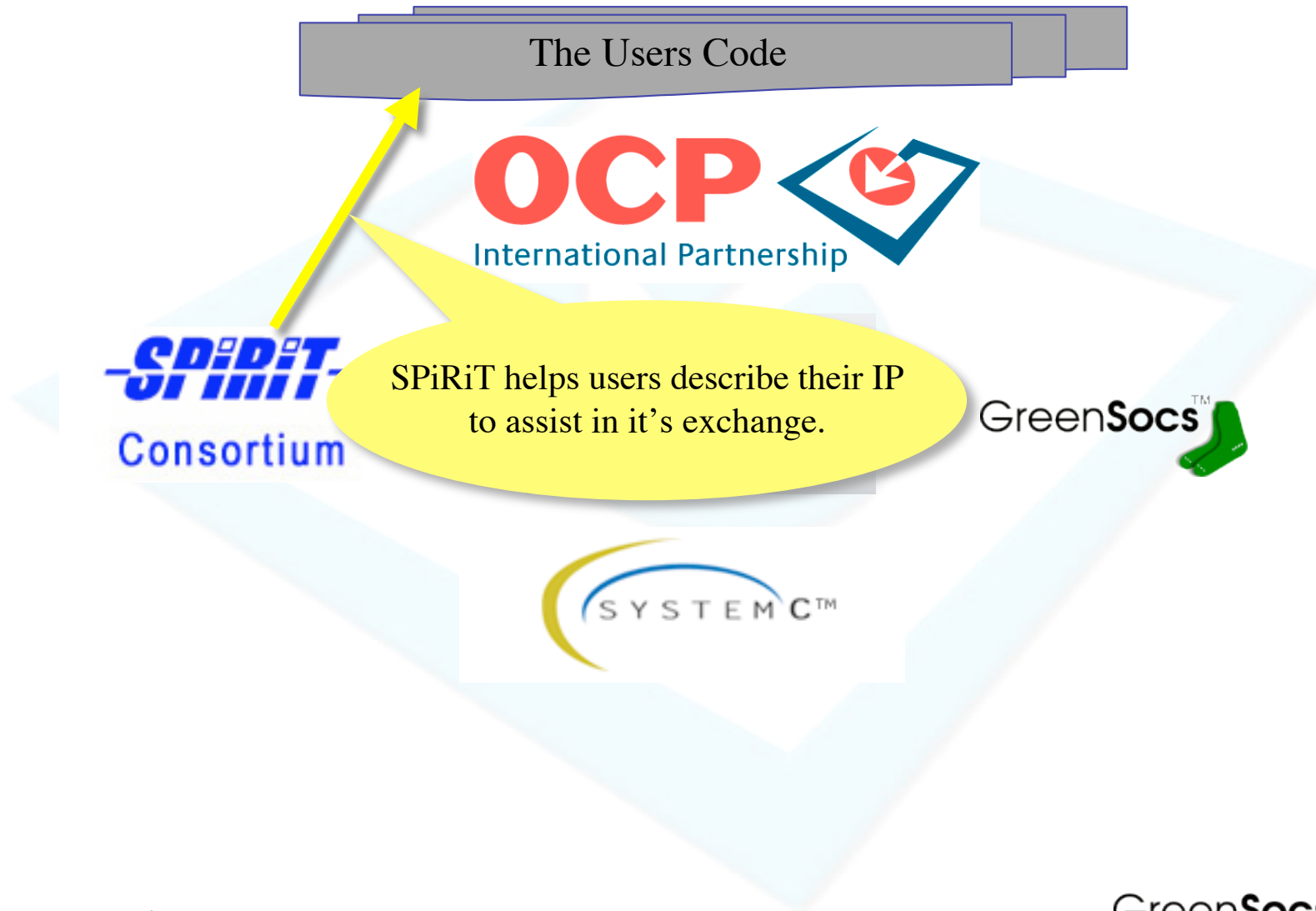
- Industry requires interoperability
 - For re-use
 - For time to market
 - For incorporation of new IP
 - And new tools
- Designing a good RTL IP *is no longer enough*
- Representing that IP with a suit of fast and accurate models *is no longer enough*
- All those models need to interoperate with standard interfaces

They need to fit into a “socket”

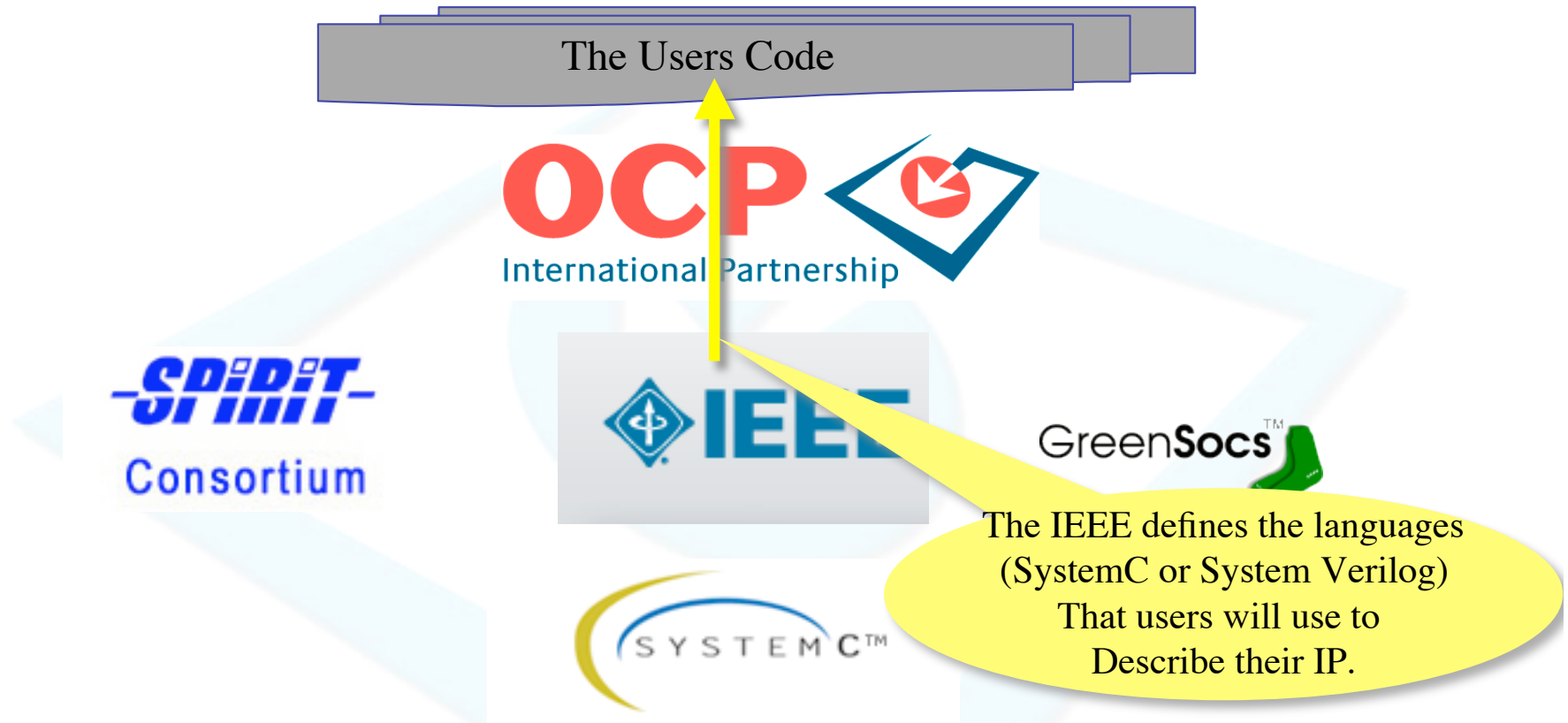
The Standards world



The Standards world



The Standards world



The Standards world

The Users Code



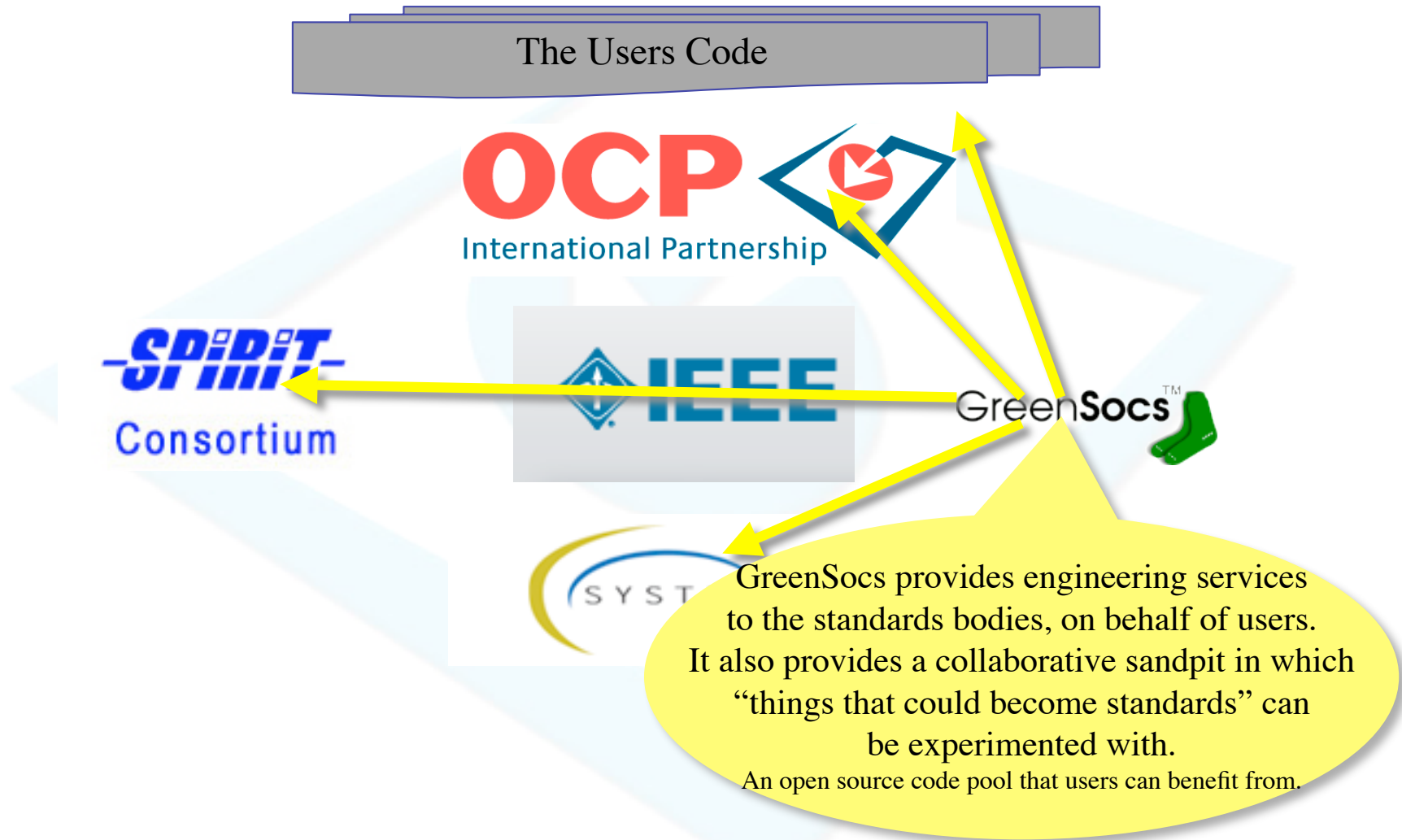
OSCI
provides the standard to the IEEE
for ratification
(it also provides a proof of concept simulator,
which is used by some users)



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The Standards world



The Standards world

The Users Code



OCP-IP feeding back to OSCI information about the socket especially bus attributes and use models.



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OCP-IP 2.1.2 Modelling Kit

- OCP-IP has a long history of releasing quality modelling kits : Since 2003.
- Key feature EASE OF USE.
- Support offered by OCP-IP to its members
- Lots of documentation and support available
- Used on many real designs
- Includes Monitors
- Includes Adapters to go between layers etc.
- SLD WG is active, organised and supported by both engineering effort and technical services. Full minutes are available to all members, and release schedules are regularly posted.

OCPIP TLM Abstraction Levels

Communication Accuracy	Data Accuracy	Timing Accuracy	Addressed Design Problems
domain specific MoC	tokens	causality, partial event ordering	algorithm design
TLM	TL3	causality, determinism, total event ordering	functional specification, expose communication
	TL2	realistic delay annotations	architecture exploration, temporal & spatial mapping
	TL1	word	100% cycle accurate performance profiling
RTL	bitvector	cycle accurate	synthesis

Technical features of OCP-IP Modelling Kit

- configuration management
 - OCP has a very large configuration space.
 - bus widths (data and address)
 - flow control options
 - existence/width of in-band qualifier signals
 - use of SRMD or not
 - use of separate data phase or not
 - specification of which commands and burst types the master can generate and the slave can understand
 - same interfaces/ports/channels/data-structures independent of the configuration of the bus.
 - The bus is configured at elaboration time.
 - Compatibility of the master and slave can be checked at this time.
 - Also 'generic' modules can be created whose behaviour depends on the OCP configuration, read at elaboration time.
 - The channel can also provide default functionality where appropriate.
- monitors - the channels support a generic interface and the OCP-IP has a monitor for performance measuring
- protocol checker which can be plugged on the channel
- timing information distribution (TL1 only)

OCP-IP SLD Roadmap

- Focus on interoperability standards:
 - OCP-IP kits are compatible with OSCI TLM 1.0
 - OCP-IP will work with the OSCI-TLM WG to ensure a quality result for the TLM 2.0 standard.
 - OCP-IP will then provide it's users with a controllable and efficient migration path between the two (if there is any user-code alteration necessary).
- Technical improvements for next release:
 - Improved regression testing
 - Definitions for longer than 64 bit data types.

Knitted Together

- All of the standards bodies are knitted together, and want to move the industry forward
- Never before has there been such a requirement on standard.
- “Platform based modelling” is not about single monolithic “tweak-able” systems
 - It’s about IP Reuse.
- As an Industry, we have to get serious about how we process standards creation - **Now!**



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More Information

www.ocpip.org

www.greensocs.org