

Developing service-oriented applications in ARGUGRID

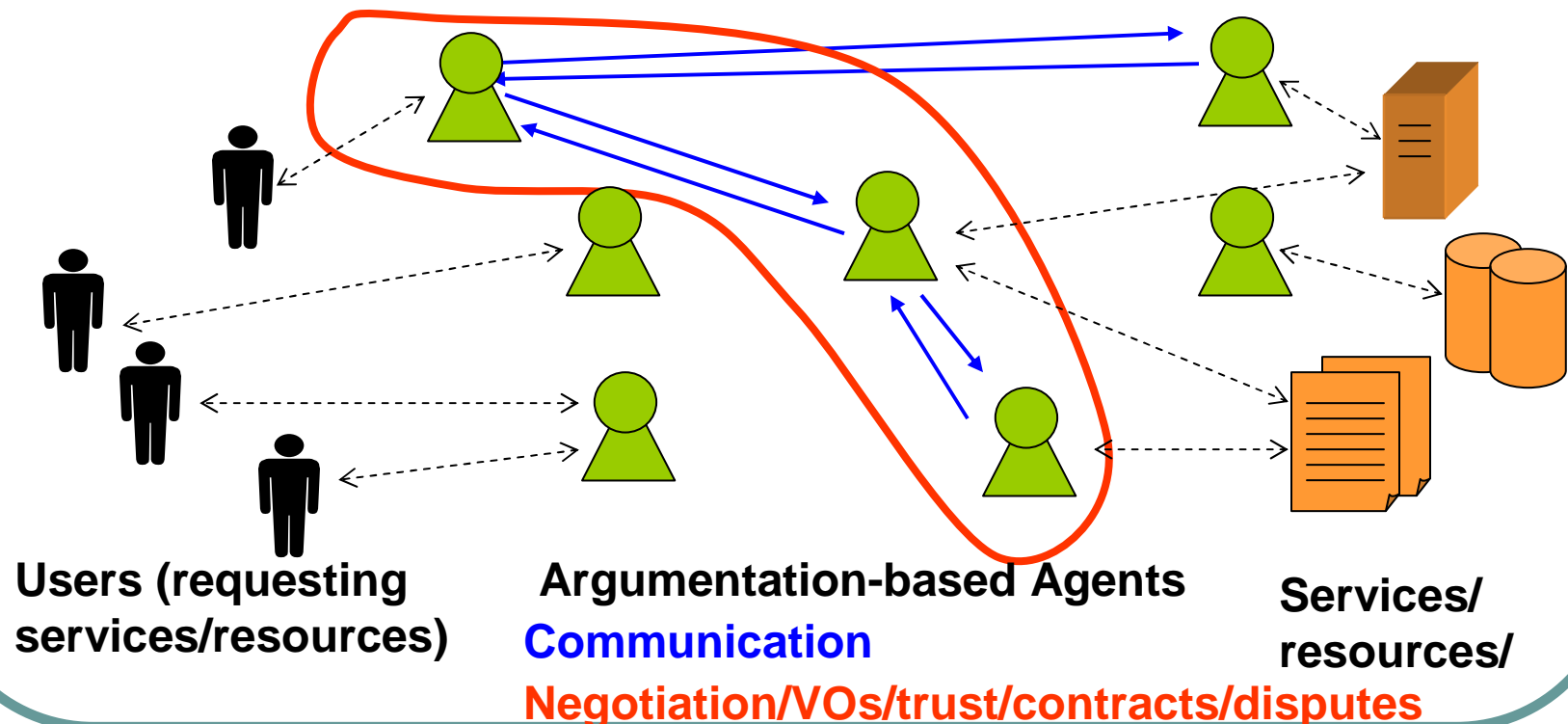
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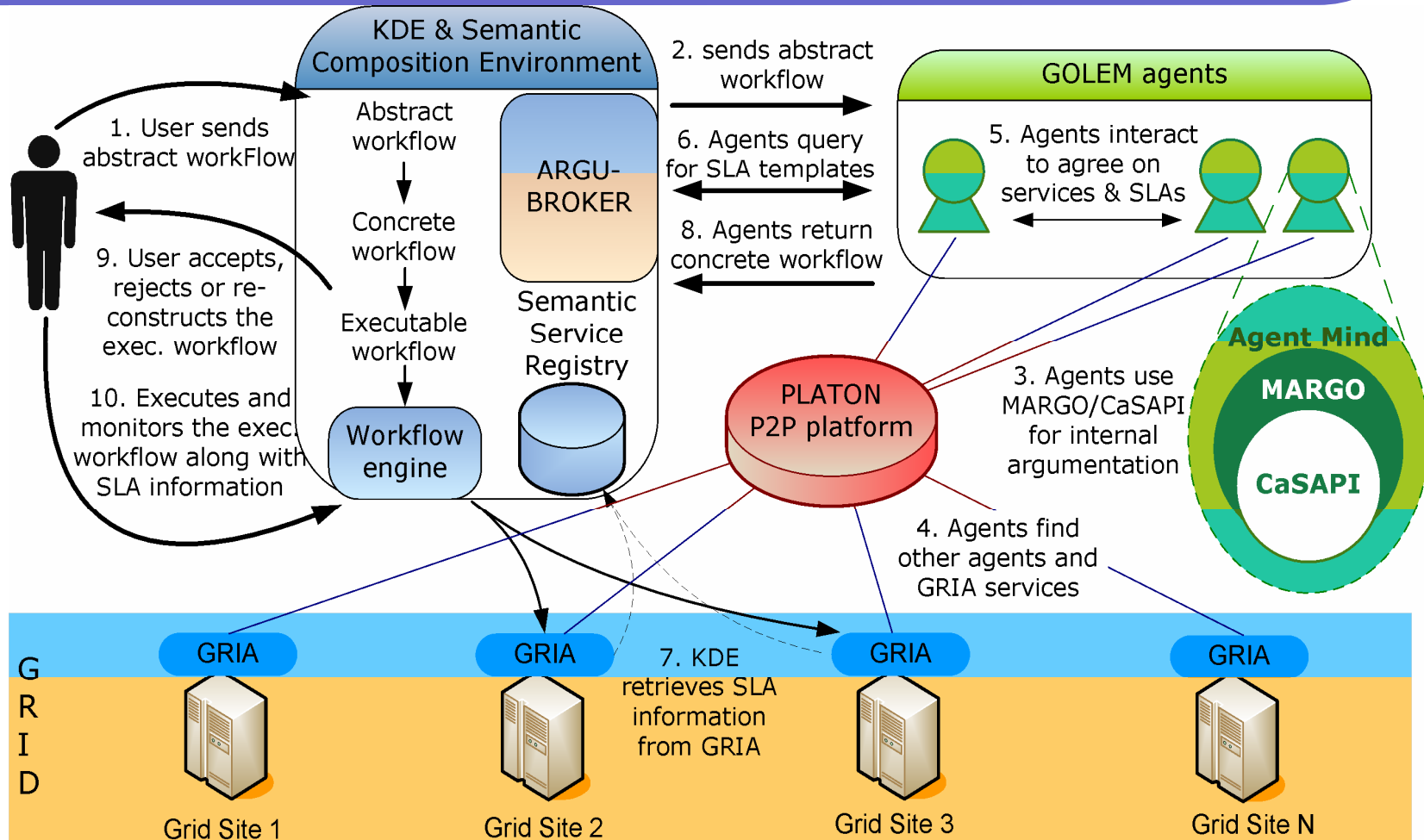


ARGUGRID vision

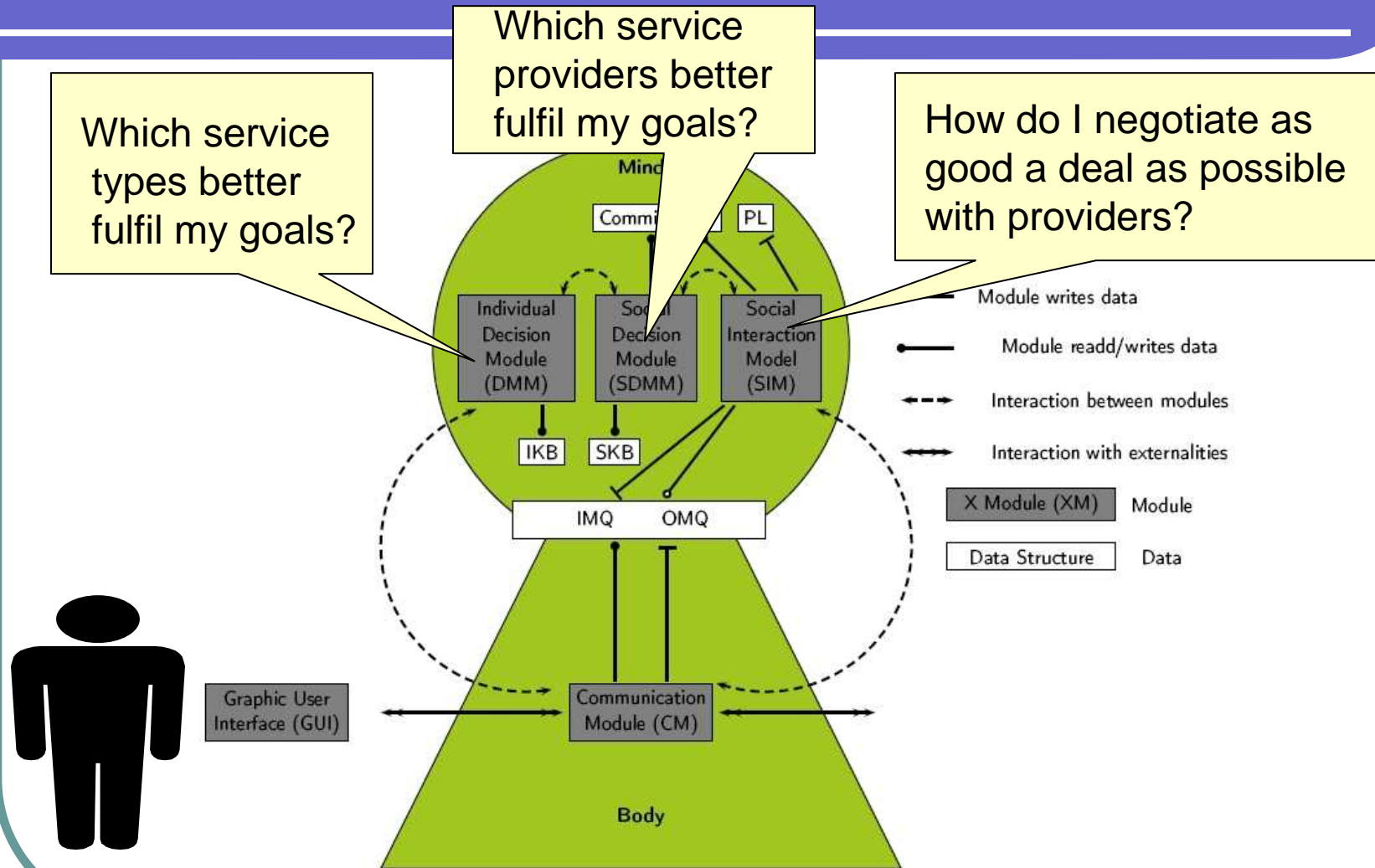
- Develop a *semantic grid/service-oriented architecture* to support applications



ARGUGRID: the “big picture”



An agent perspective



Automated activities

- Decision-making (service types, service providers, customisation)
 - alternative decisions, benefits and preferences, contradictory information
- Negotiation
 - Contracts (SLAs)
- Trust computing
 - evidence (from contracts) + statistics
- Dispute resolution
 - contracts (legal doctrines)

*all supported by **argumentation** (logic-based AI):*

ARGUGRID

e-procurement

- *Low-complexity of specification of user requirements (input to agents)*
- *Built-in expert, complex knowledge (agents' "mind")*
- *Customisation*
- *Negotiation of contracts (price, due date etc)*
- *Selection of (dynamically detected) trusted providers only (past behaviour and contracts)*
- *Explanations of decisions (output to users)*
- *Support in resolving disputes about non-fulfilment of contractual obligations.*

Automated contract negotiation

- Two agents (a buyer and a seller) each with their own preferences (ranking of outcomes)
- Alternating offers and counter-offers leading to agreement (or not)
- Either agents can propose rewards
- Using a Nash equilibrium strategy (formal properties)

Trust computing

- trust = willingness of an entity (*evaluator*) to engage in a risky relationship with another entity (*target*)
- existing approaches classified as either cognitive (based on beliefs/knowledge) or game-theoretic (subjective probability based on statistics)
- we propose a hybrid approach using both statistics, a subjective probability model and knowledge/beliefs in the form of arguments
e.g. “I trust provider X because it has included a clause in the contract about....”

Conclusions

- User-centered approach
 - Supported by (argumentative) agent automation
 - Automated negotiation (and dispute resolution)
- On-demand
 - service selection
 - service orchestration
 - service customisation
- Open market-places

Call for suggestions

I would use the
ARGUGRID
platform for...



Send us your suggestions about possible and imaginative uses of our platform.
The best ten suggestions will win a 4GB USB flash drive!

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