The Representation of Information Warfare effects in the Synthetic Battlespace

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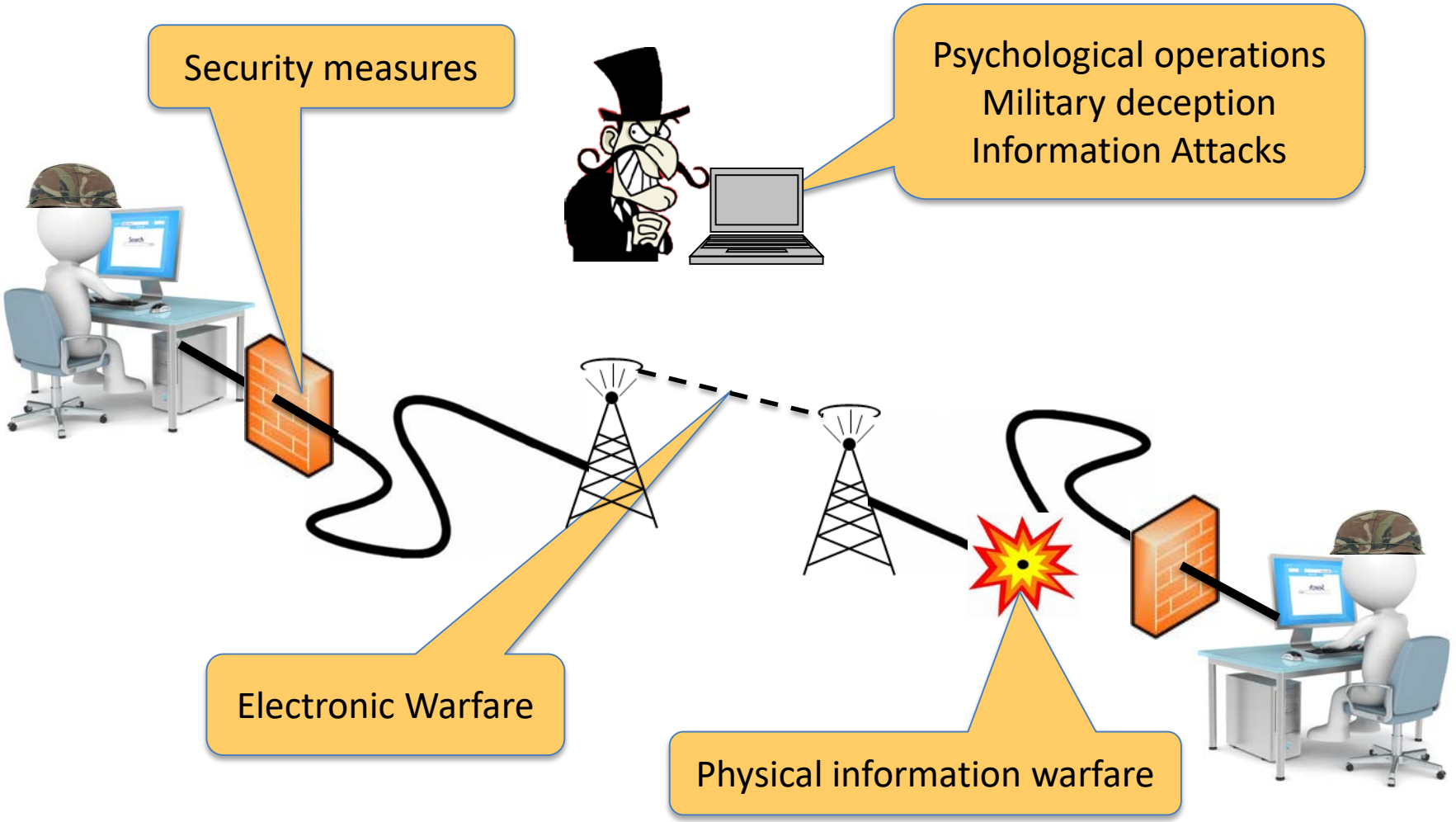
Information Warfare

- Definition
  - ‘a concept involving the battlespace use and management of information and communication technology (ICT) in pursuit of a competitive advantage over an opponent’
  - Offensive
    - Deny, corrupt, destroy, or exploit an adversary's information, or influence the adversary's perception
  - Defensive
    - Safeguard own ICT systems from similar actions (also known as information warfare hardening).
  - Exploitative
    - Exploit available information in a timely fashion to enhance own decision/action cycle and disrupt the adversary's cycle

Information Warfare Effects



Lines of Communications

Platforms

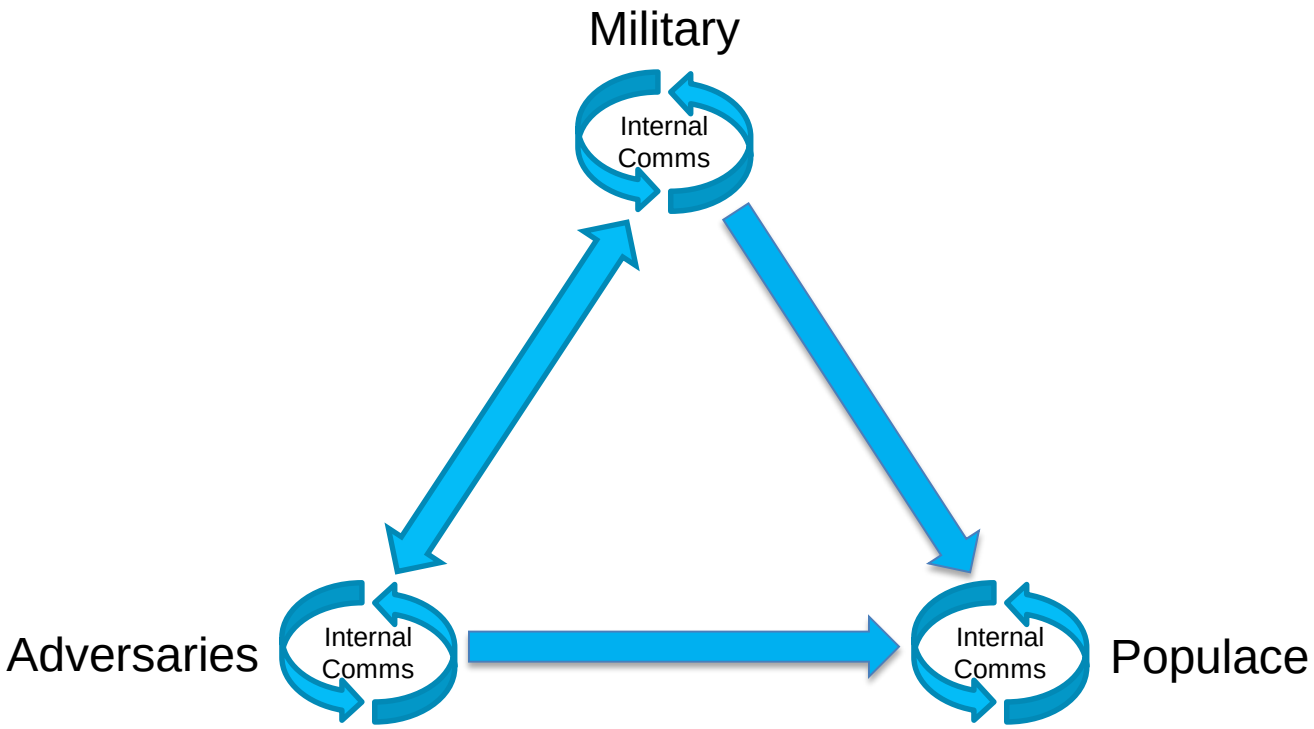
Command Chain

Military and Civilians

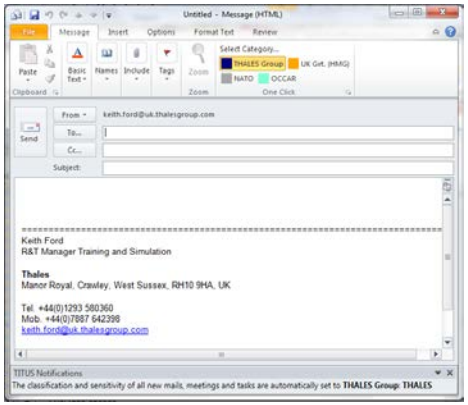
Military and NGOs

Civilians

Communication Influencing

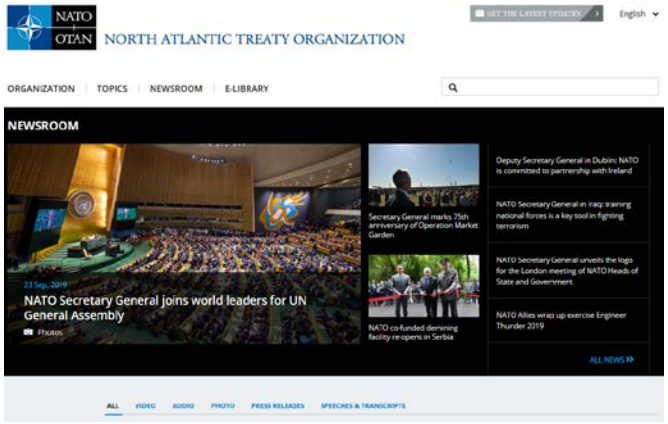


Communication Media



E-mail

Texts



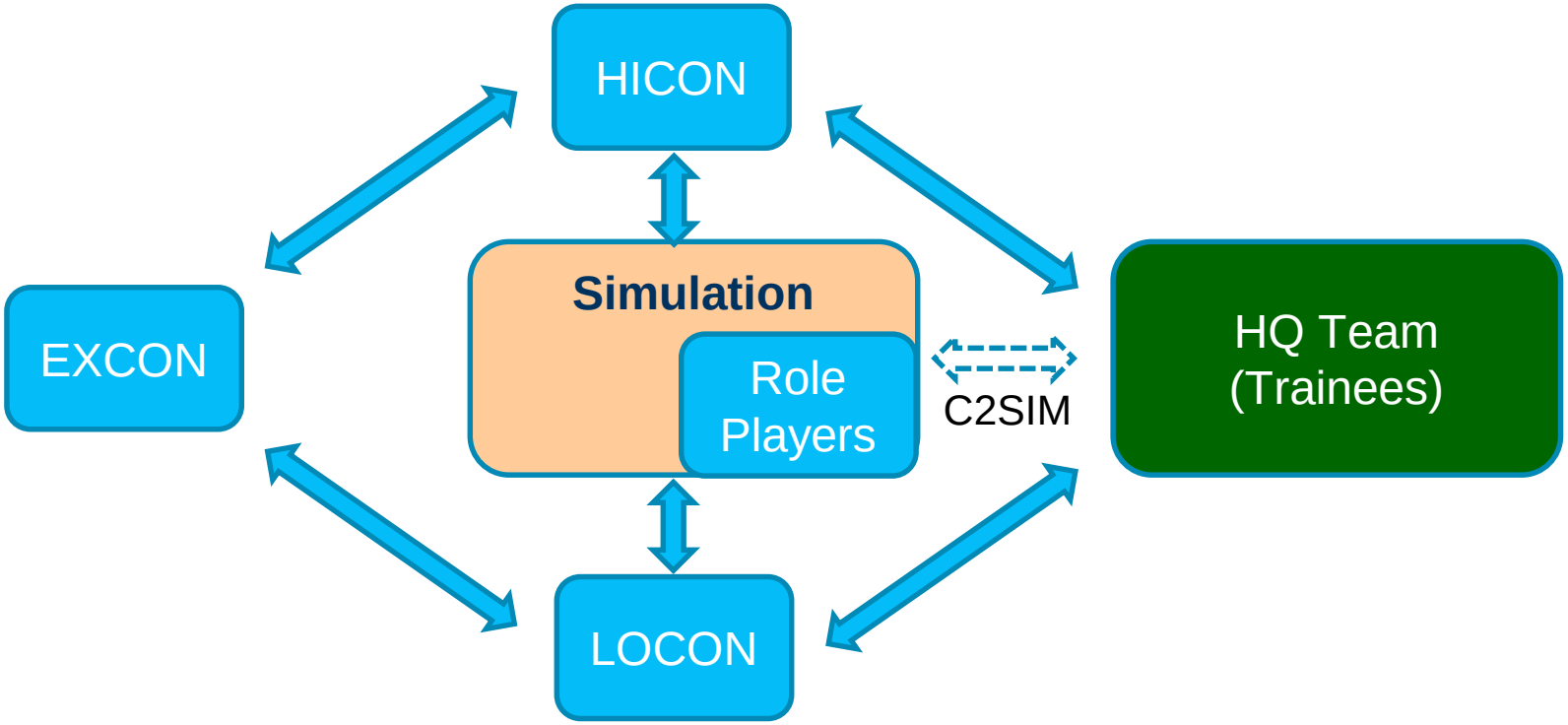
Web Sites

Broadcast

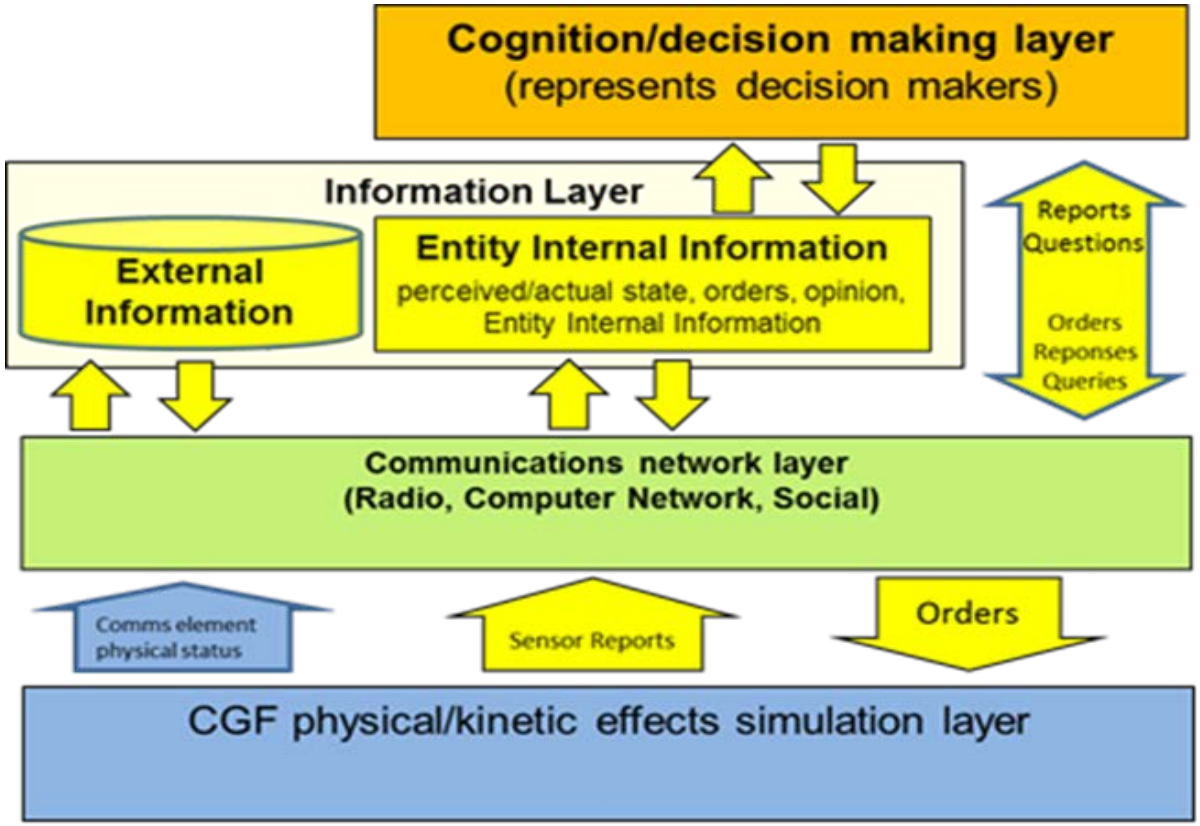
Social Media

Spoken

Elements of a Representative Exercise

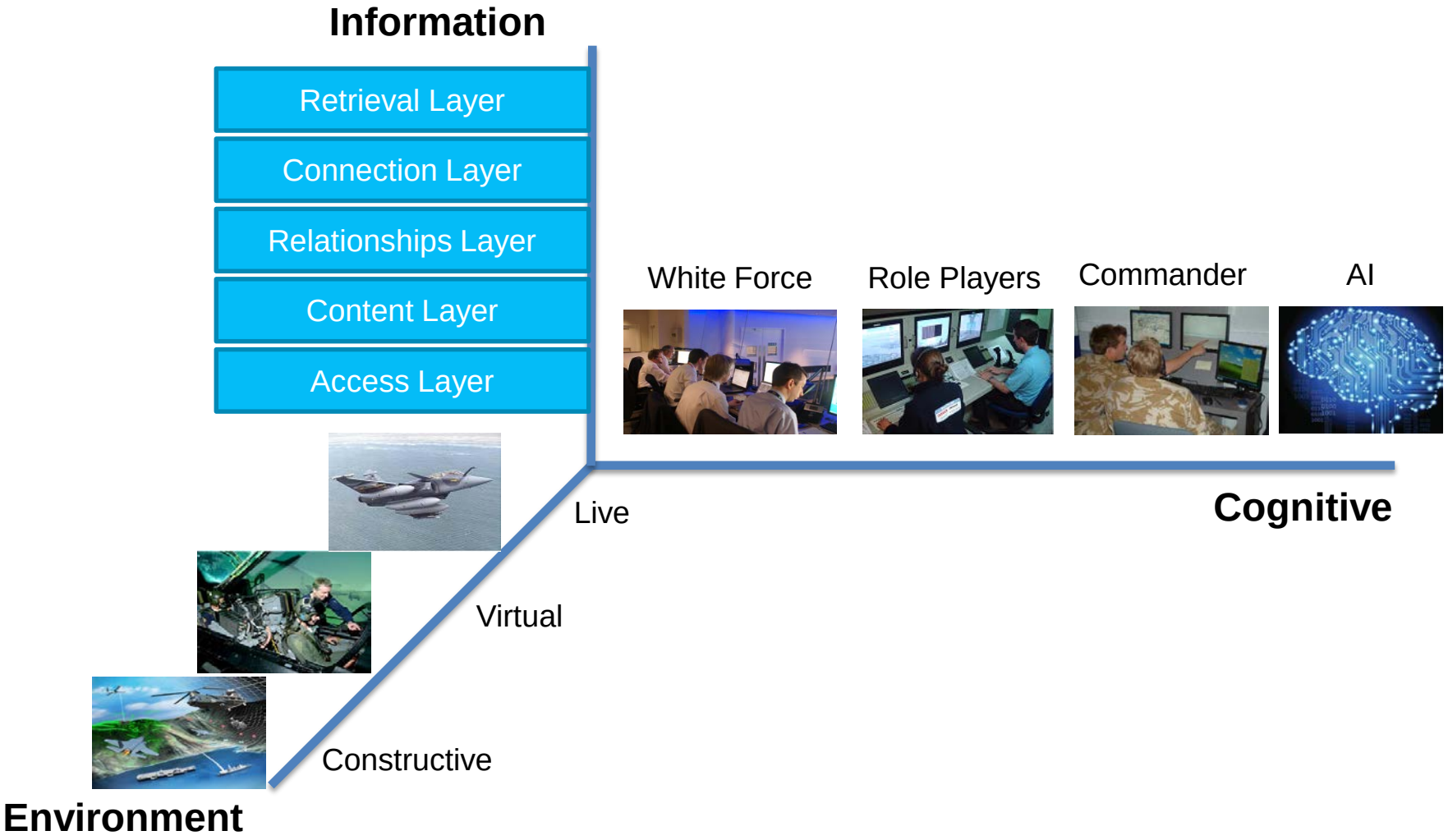


Previous Research

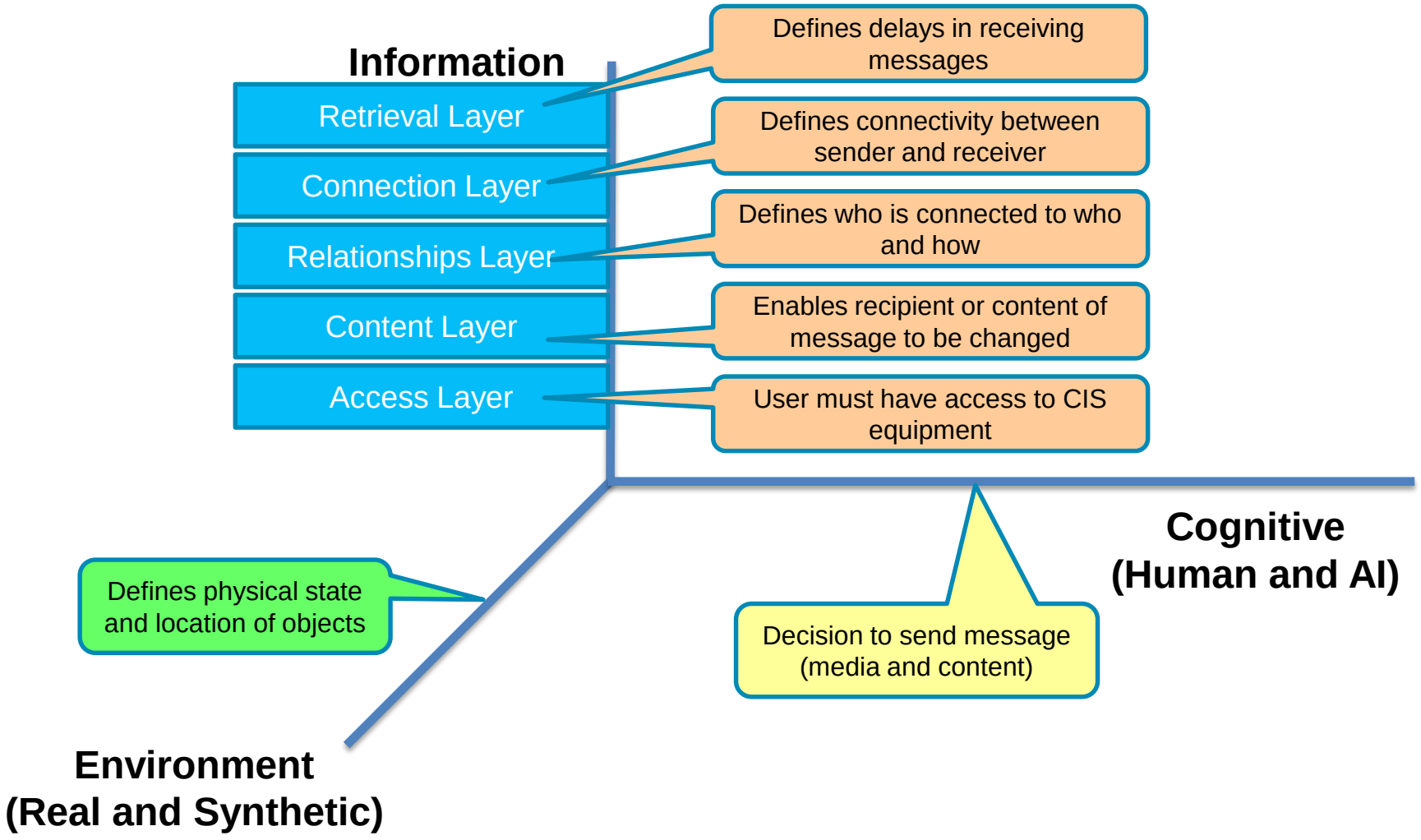


TTCP JSA2 KTA 3 Model

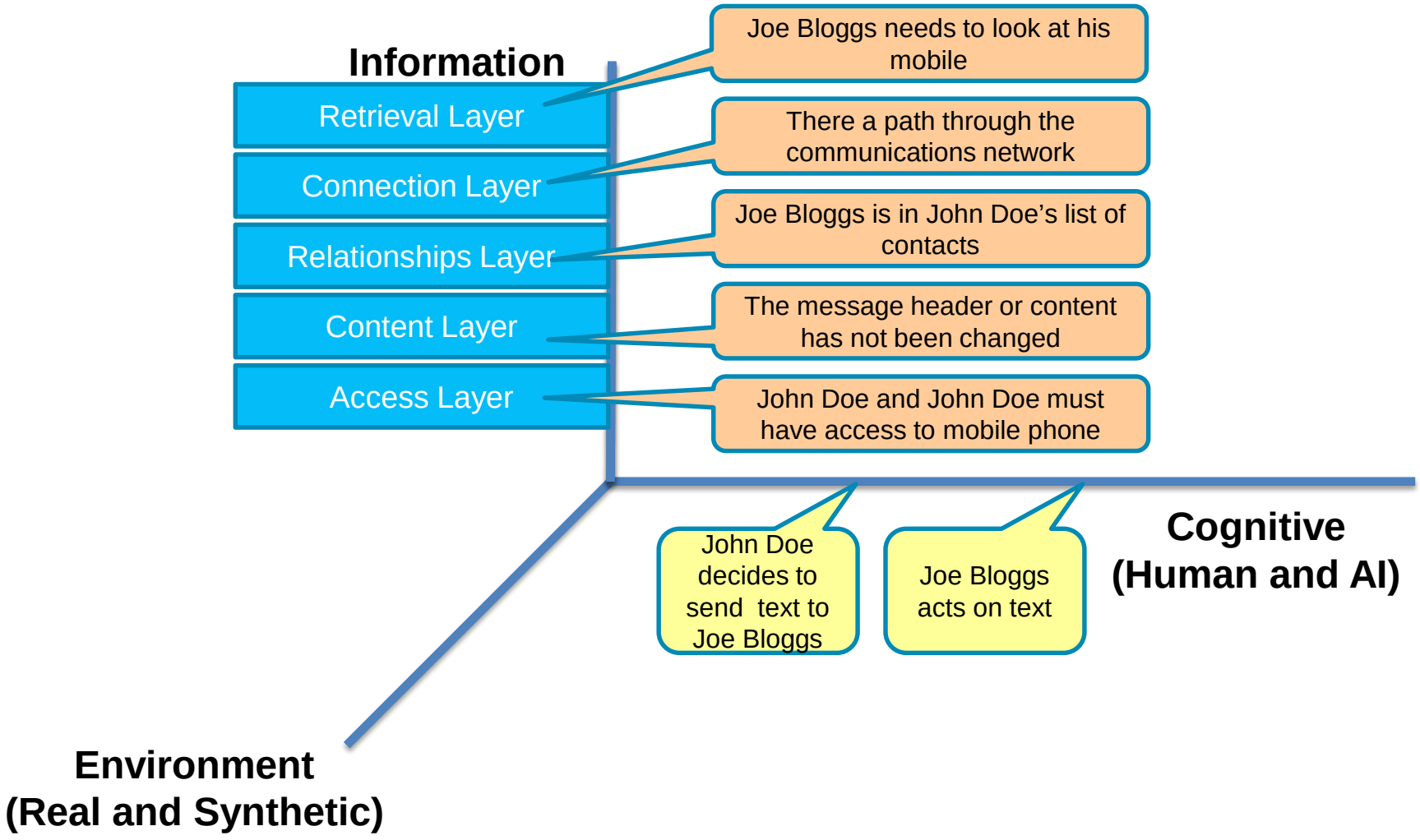
3 Axis Battlespace Model



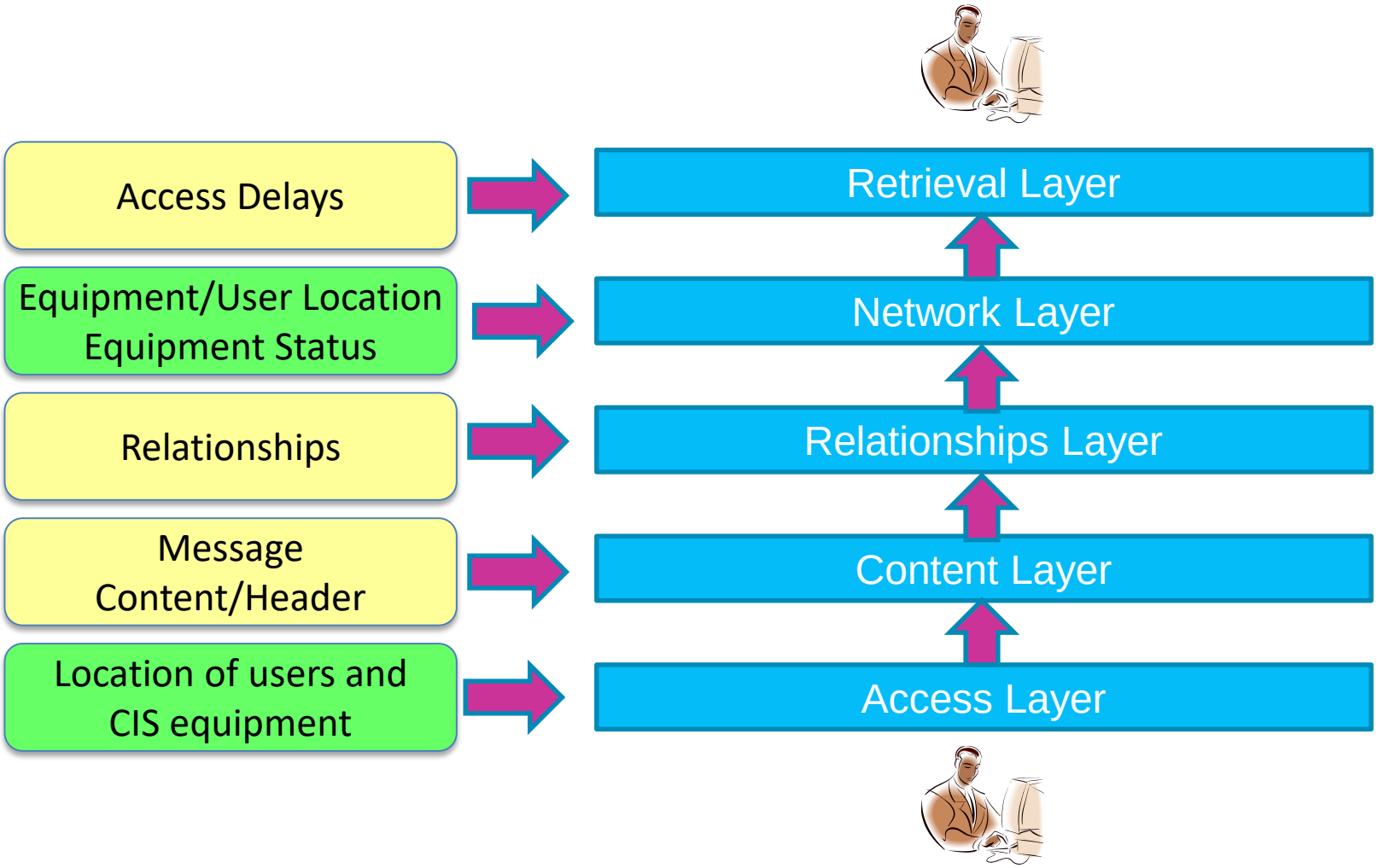
5 layer Communication Model



Communication Model - Example



Communication Model Interfaces



Introduction of Cyber Effects

Jam Signal
Denial of Service

Spoofing
Fake News

Retrieval Layer

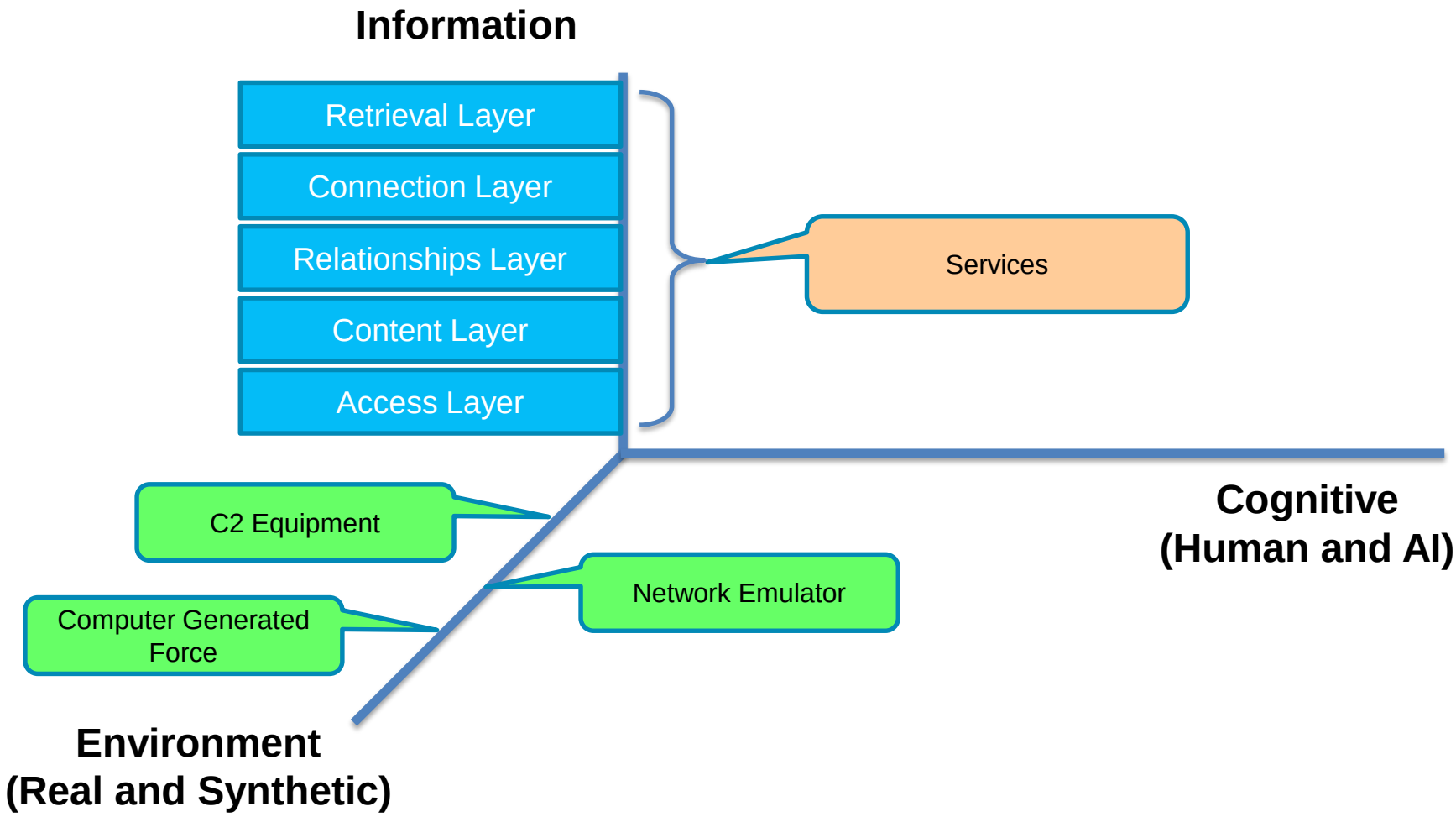
Network Layer

Relationships Layer

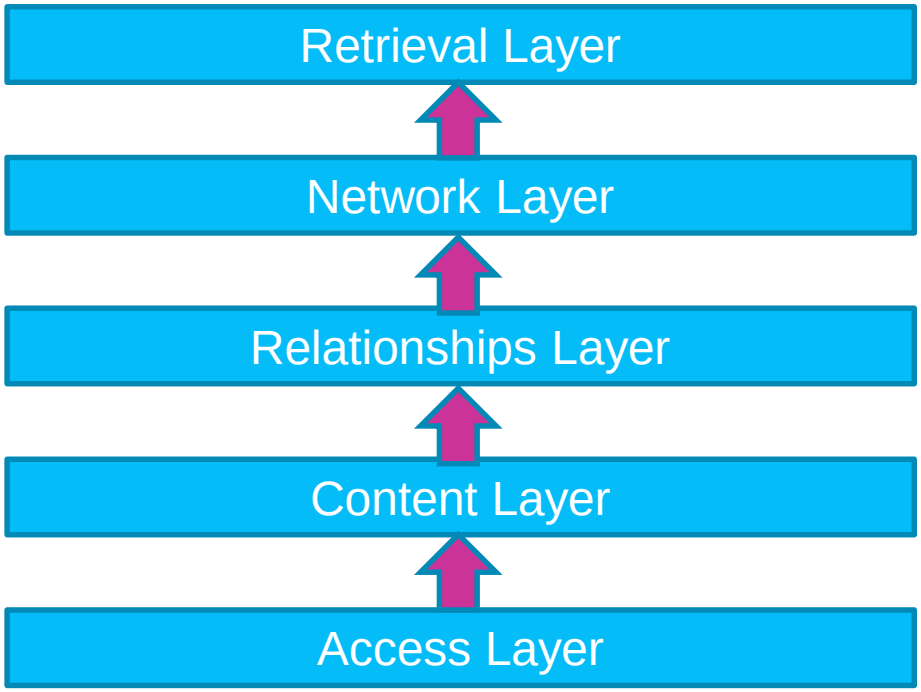
Content Layer

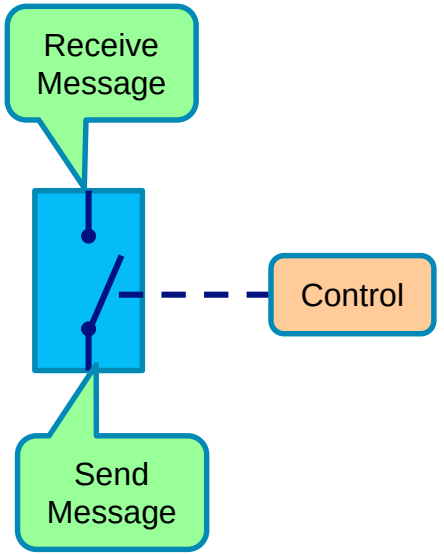
Access Layer

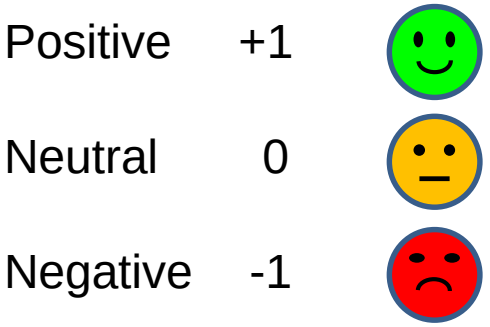
Implementation



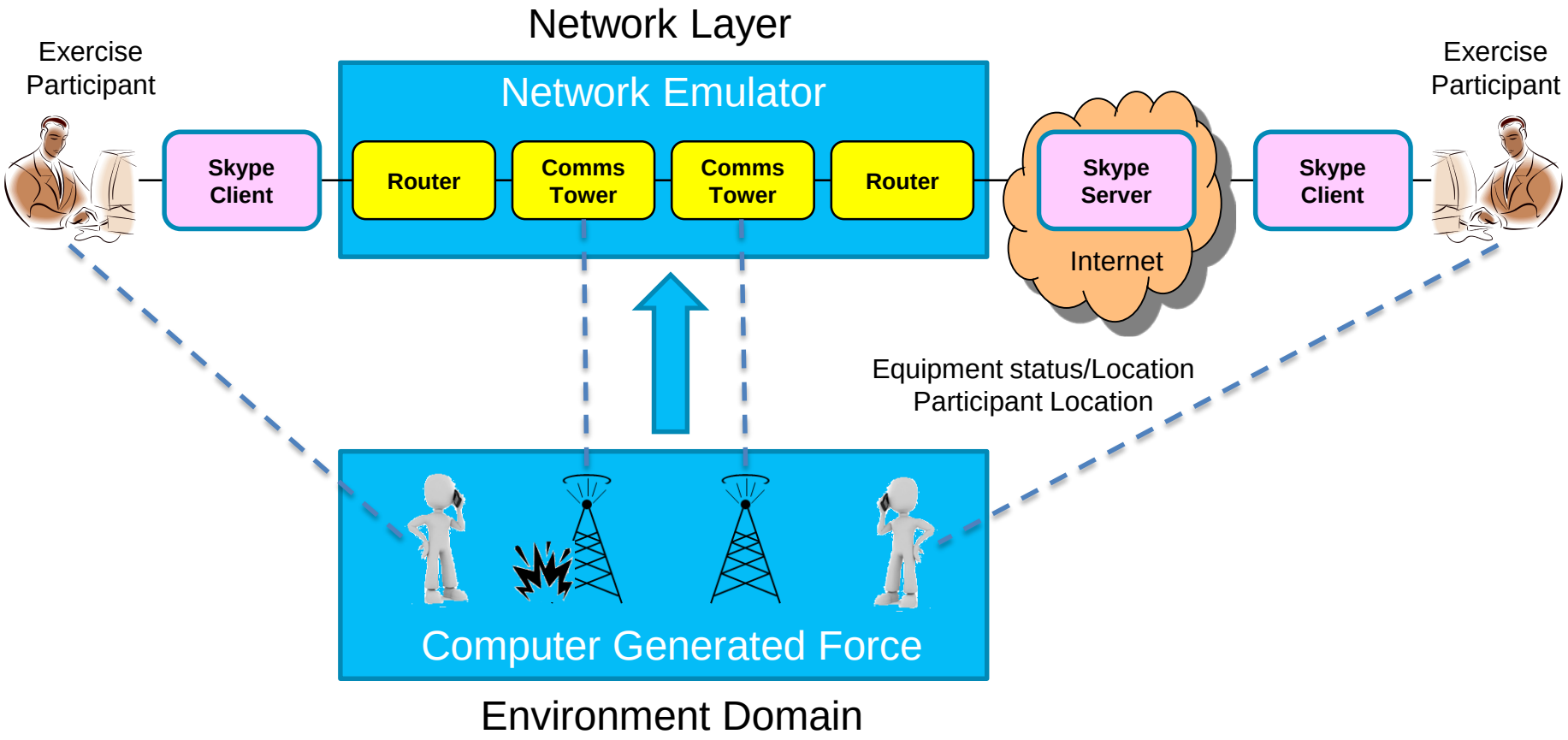
The Art of Simulation



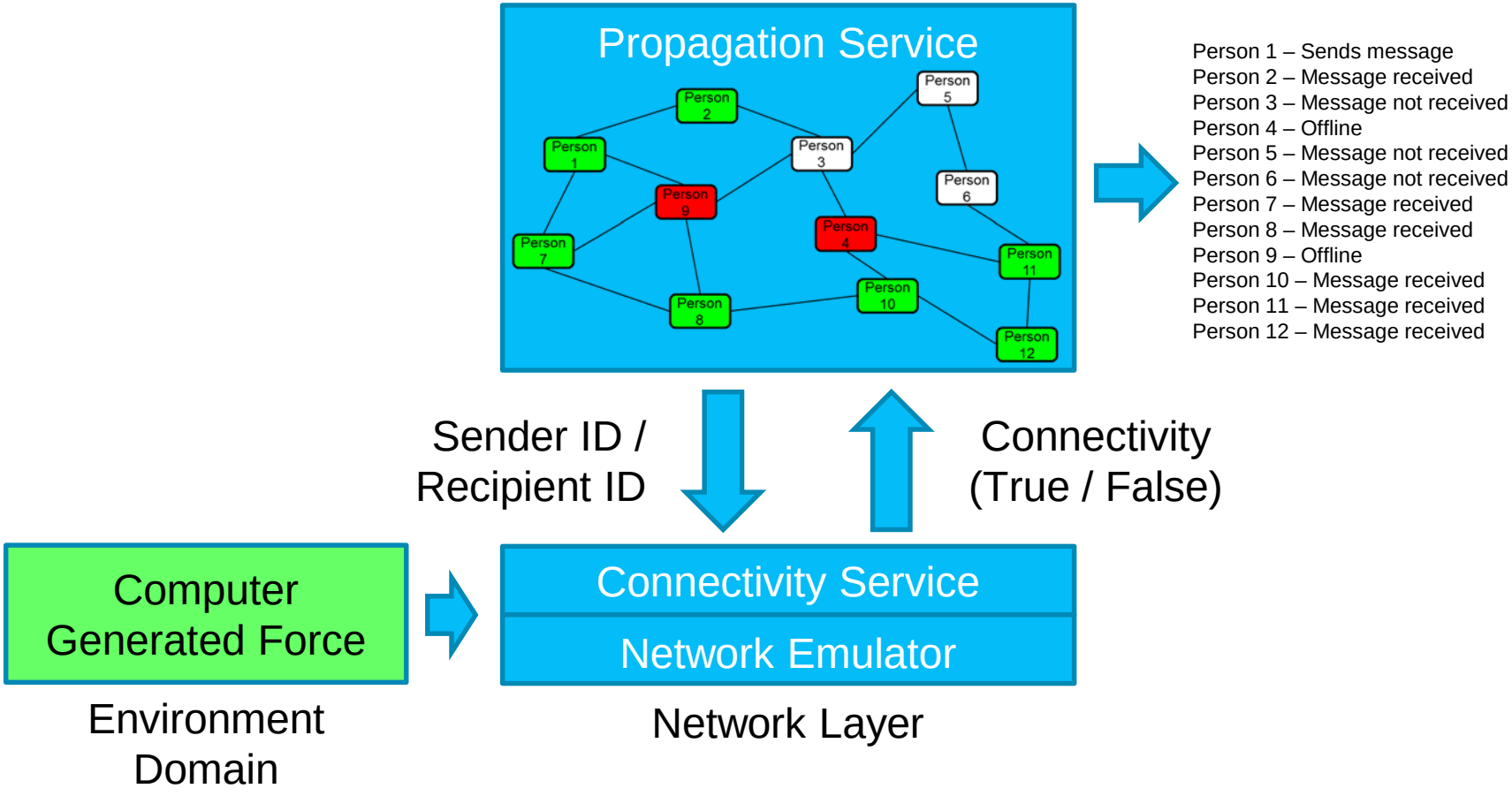




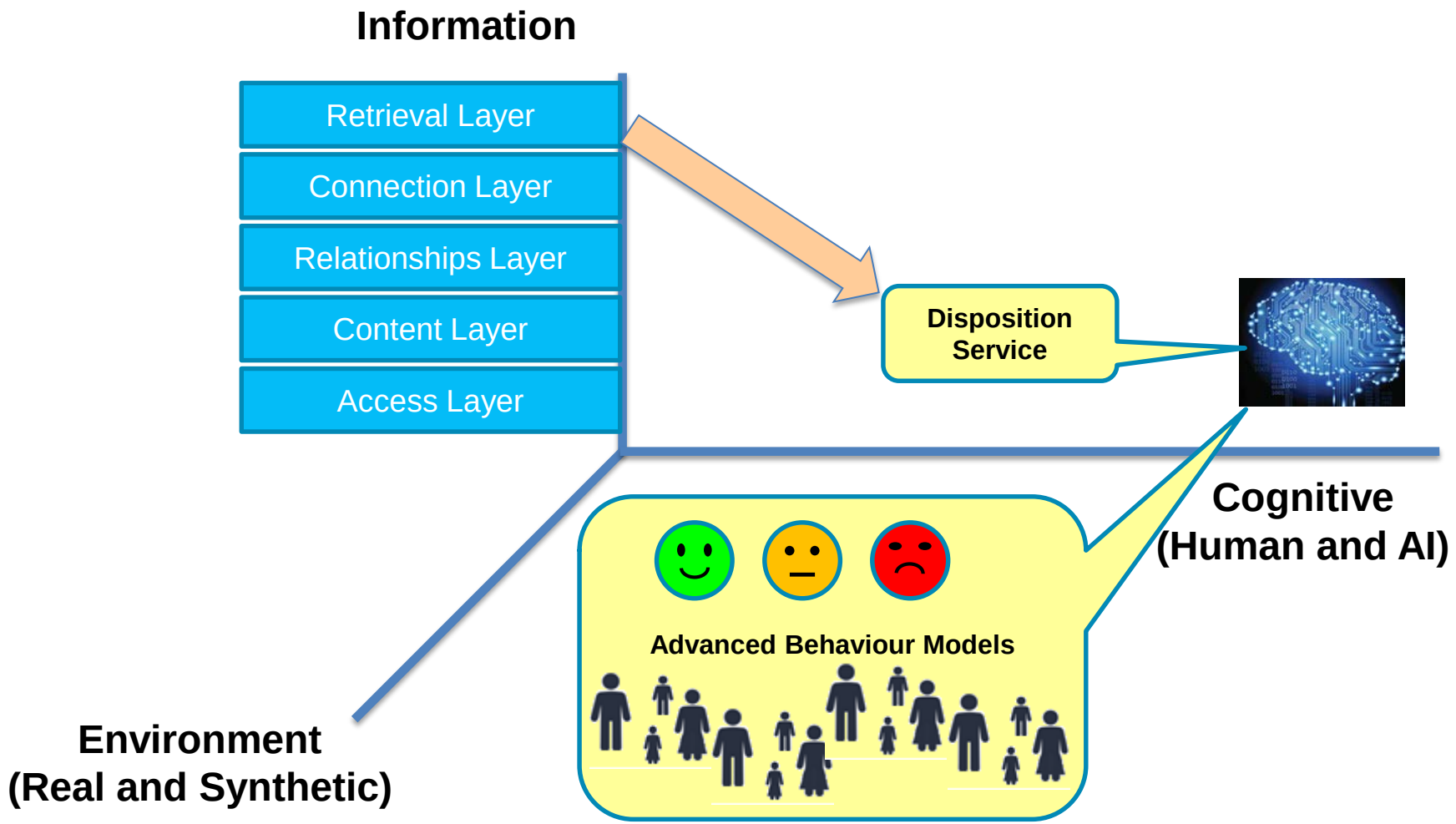
Demonstration of Degradation of Communications Using Real Equipment



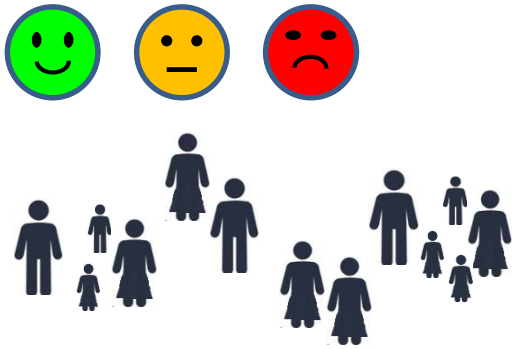
Demonstration of Message Propagation



Implications for Future Simulations



Capabilities Required in the Future Synthetic Battlespace



Human Behaviours

Information Warfare

Infrastructure and Logistics

Populace

Conclusions

- Future simulations need to include additional capability to adequately represent modern warfare
- Inclusion of information warfare effects can be incorporated within current simulation architectures
- Proposed Communication Model provides a structured approach to degrading/changing/ blocking messages
- Need for additional data types and standards
- Requirement for higher-fidelity behaviour models

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