Scalable, Secure, and Broad-Spectrum Mechanism for Enforcement of Protocols

Technology #2018-105

There is a growing realization in the commercial world that trust among members of a multi-agent systems operating electronically over the Internet is needed. Trust can be accomplished by enforcing (governing) electronically, a contract, policy, or another type of protocol to govern transactions among members.

Summary:

Rutgers researcher, Dr. Naftaly Minsky, has developed a novel control mechanism (“COP”) that governs interactions among members of multi-agent distributed systems — which can include software processes, physical IoT devices, and people operating via diverse platforms—and can enforce a wide range of protocols over such interactions. Such protocols may represent a contract that binds these actors, or it may be necessary for the actors to collaborate effectively on some common goal, or to compete safely over the use of resources.

The COP mechanism is inherently decentralized, and it satisfies the following important qualities: (a) very low latency; (b) highly scalable; (c) supports interoperability between systems operating subject to different protocols, and can, thus be applied to systems-of-systems; and (d) is considerably secure.

Advantages:

- Low latency between a transaction and its validation
- Scalable, secure & fault tolerant
- Applicable to most industries/applications

Applications:

- Financial Transactions
- Supply chains, and other kind of systems-of-systems
- B2B commerce
- IoT: Control systems, Sensors/Actuators

Intellectual Property & Development Status:

Patent Pending. Intellectual property is available for licensing and/or research collaboration.
Inventors

Dr. Naftaly Minisky

Dr. Naftaly Minisky is a professor in the Department of Computer Science at Rutgers University. His current research is focused on coordination and control in large, open, and distributed systems. This project is based on the concept of Law Governed Interaction (LGI), which is a powerful, decentralized, "policy mechanism."

Chen Cong

Mr. Cong is a graduate student studying computer science at Rutgers University. He is currently employed by Google LLC.

David Zimmerman