

The conclusive force of multi-hop mobile agents

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Abstract

The internet has had great influence on society; a whole new economy is thriving on the possibilities the internet has introduced. One of these possibilities is the introduction of so called multi-hop mobile agents. These kind of agents have the ability to migrate the internet more than one time.¹ They can be very useful in searching for information, helpful in resolution of disputes and negotiations and so on.

Multi-hop mobile agents introduce some new legal issues, especially integrity issues. These agents move themselves several times from one location to another location and during their stay on one of these locations the agent can be executed by a computer system. Before and after the execution the code of the agent will be unchanged, but the data of the agent won't be unchanged always. The agent very often needs to gather information and change and/or save parameters and external data to function properly.

The fact that data (very often) needs to be changed during the execution of the agent code has a serious impact on the mechanisms which are implemented to guarantee the agents integrity. A lot of technical mechanisms which have been designed to insure data integrity are partially useless to guarantee the integrity of the agent, because these mechanisms only guarantee that no code and data has been changed at all.

When people are going to use multi-hop mobile agents in the future, they will need mechanisms which will detect unlawful modifications in the agent data (external data and state). The question that arises is which legal and technical integrity mechanisms make sure that one can say with enough certainty that no unlawful modifications have been made to agent data. Another question is which certainty is enough to prove that no unlawful changes have been made.

In this paper I will research which legal integrity mechanisms should be implemented in agents and agent support systems (like agent platforms) to make sure integrity affections can be detected. It will only research the possibilities of detection of integrity affections; it will not research the mechanisms to prevent integrity affections. First I will look at the fundamentals of law of evidence to understand what principles law of evidence uses to answer the question which properties make evidence to be trustworthy evidence. In the second part of my paper I will look at the kind of mechanisms which should be implemented by technicians to detect integrity affections.

¹ For example: migrating from location X to location Y and further to location Z.