

Miro: A Visual Language for Specifying Security

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ABSTRACT

Miro is an ongoing project at CMU to design and implement a visual specification tool for security constraints. The visual format provides a mathematically precise notation for expressing security constraints which can be easily understood and modified by users who are not specially trained in security formalisms. The language contains a typing system which allows a system administrator to restrict all potential security configurations to follow a specific pattern, including standard mandatory security requirements.

One important feature of a visual language is the straightforward representation of hierarchical issues. Miro uses diagrams as a natural way of showing security relationships between users and data; for example, Miro allows a user to separate the security at a large site into visually distinct subparts. This allows complicated security structures to be presented at various levels of detail.

Miro can be used to reflect any sort of security structure that can be expressed as a set of constraints on an access control matrix. It is not specific to any system. Miro can also be used to reflect the dynamic nature of security; the system allows one to express the accumulation, deletion, and modification of security structures.

Our talk will give an overview of the language and semantics, and a discussion of the tools we are implementing to support the use of our language in real environments.