Using Trust Negotiation to Enhance Information Dissemination During Times of Crisis

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Background

• During times of crisis, it is imperative to get the right information to the right people at the right time

• Information dissemination systems requiring previously established user accounts hinder this process

Goals

Integrate trust negotiation, an access control solution that uses flexible policies and runtime exchanges of credentials to establish trust, with the Disaster Management Interoperability Services (DMIS) system to allow qualified first responders to access vital information during a disaster without requiring pre-existing accounts.

Fundamental Questions/Challenges

• DMIS is used by many existing third-party tools. How can we integrate trust negotiation and DMIS without breaking these tools?

• DMIS relies heavily on OASIS standards defining the formats of messages exchanged during emergencies. How can we make it easier to post, download, and manipulate these messages from within Java programs?

Research Results

• Integrated the networking architecture of Traust authorization service with TrustBuilder2

• Worked on understanding and accessing the DMIS server architecture and also mastered the various classes and API methods associated with it

• Developed mechanisms for encoding EDXL Messages and CAP Alerts, which carry information regarding the crisis into XML files that can be transported over the internet

• Also developed classes to decode XML files retrieved over the internet into Java objects

• Developed application-specific GUI elements that can encode/decode messages and alerts and send and retrieve them

Related Work/Interaction with Other Projects

• This work leverages the TrustBuilder2 framework for trust negotiation

• Our results will be used by the NSF Responding to Crises and Unexpected Events (RESCUE) project