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Message Framework for Disaster Management: An Application Model for Mines

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Abstract : Different tools and technologies were implemented for Crisis Response and Management (CRM) which is generally using available network infrastructure for information exchange. Depending on type of disaster or crisis, network infrastructure could be affected and it could not be able to provide reliable connectivity. Thus any tool or technology that depends on the connectivity could not be able to fulfill its functionalities. As a solution, a new message exchange framework has been developed. Framework provides offline/online information exchange platform for CRM Information Systems (CRMIS) and it uses XML compression and packet prioritization algorithms and is based on open source web technologies. By introducing offline capabilities to the web technologies, framework will be able to perform message exchange on unreliable networks. The experiments done on the simulation environment provide promising results on low bandwidth networks (56kbps and 28.8 kbps) with up to 50% packet loss and the solution is to successfully transfer all the information on these low quality networks where the traditional 2 and 3 tier applications failed.

Keywords : crisis response and management, XML messaging, web services, XML compression, mining
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