Social networking for terrorists

May 4 2009

A new approach to analyzing social networks, reported in the current issue of the *International Journal of Services Sciences*, could help homeland security find the covert connections between the people behind terrorist attacks. The approach involves revealing the nodes that act as hubs in a terrorist network and tracing back to individual planners and perpetrators.

Dr Yoshiharu Maeno, Founder Management Consultant of the Social Design Group and Dr Yukio Ohsawa, Associate Professor at the School of Engineering, University of Tokyo, Japan, explain that their analytical approach to understanding terrorist networks could ultimately help prevent future attacks.

Terrorist attacks can cause significant loss of life, have intense social and environmental impacts, and large economic losses. Maeno and Ohsawa explain that responding to a terrorist attack is akin to dealing with a natural disaster, with one important difference. Disaster recovery management is required with both, but in the case of a terrorist attack there is the added pressure of short-term responses to the terrorists themselves and in the long-term the need to identify and weaken the covert foundation underpinning an organized attack.

The team explains that by combining the prior understanding of expert investigators with graph theory and computational data processing, it should be possible to analyze a terrorist network and reveal latent connections and patterns. The researchers have carried out such an analysis of the network responsible for the 9/11 attacks in 2001 in order

to evaluate the performance of their approach.

Fundamentally, their technique is a mathematical one involving "node" discovery. The nodes of a network are the hubs at which different members of the network are connected. Usually, ordinary members have one or two connections, nodes can have several and the critical nodes, the hubs, have many more.

The scheme is analogous to the structure of the world-wide web where individual web pages may have one or two connections, small organizations may have a few more. Major hubs, such as the big search engine companies, such as Google and Yahoo, news sources like CNN and the BBC, and social media networks such as Facebook and MySpace have many, many more. These big nodes act as the hubs through which individual and smaller sites are interconnected.

The team's computational analysis of the terrorist network associated with the 9/11 attacks revealed nodes that were not apparent to security experts in advance of the attacks. Such latent nodes appear to have been critical to the attacks but superficially do not appear to be particularly important individuals acting as hubs.

The analysis revealed a connection not known in advance of 9/11 between Waleed Alshehri and Mohand Alshehri, who share a name but are unrelated, which indicated the existence of Mustafa Ahmed Al-Hisawi as an important individual in the network.

In retrospect the connections seem obvious, but they were not seen initially, but the Japanese team's analysis could have unearthed them much sooner. Mohand Alshehri helped Mohammed Atta hijack the AA11 and fly it into the North Tower of the World Trade Center. Mohand Alshehri hijacked the AA175 and flew it into the South Tower of the World Trade Center. Waleed Alshehri had six links and is, the

researchers demonstrate, the keystone person.

Having such network insights sooner rather than later would allow investigators to gather information on associates, friends, and relatives of a suspect terrorist and so bring the perpetrators to justice that much sooner or perhaps even unravel a network plotting future attacks.

"If the investigators had had a warning information on the 19 hijack planners (including WA and MA) before 9/11, our analysis could have aided the investigators in quickly understanding the complete picture of the organized attack including the covert foundation (like MAAH)," Yoshiharu says, "I am not sure, however, whether even a very quick investigators' understanding and action could have prevented the attack. Our analysis seems more suitable to satisfying the long-term need than the short-term need."

More information: "Analyzing covert social network foundation behind terrorism disaster" in *Int. J. Services Sciences*, 2009, 2, 125-141

Source: Inderscience Publishers (news : web)