



Investigating Virtual Social Networking in the Military Domain

Jacquelyn Crebolder – DRDC Atlantic

Sylvain Pronovost, Gerald Lai – CAE Professional Services

14th ICCRTS, Washington, D.C. - June 2009



Defence Research and
Development Canada

Recherche et développement
pour la défense Canada

Canada



Information sharing challenges of netcentric operations

- Diverse, multi-national, distributed teams
- Multi-agency, non-government organizations
 - unfamiliar partners
- Frequently changing members and groups
- Challenges to communication and collaboration
- Who knows what? Where are the resources?
- Inter-personal and inter-group trust





Primarily pull-based

Collaborative web-based tools

- **Electronic mail** – means of communicating and storing primarily text-based messages
- **Chat** – internet-based conversational script
- **Blogs** – (weB)log – regular entries of commentary
- **Wikis** (Wikipedia) – multiple editors, create/link websites
- **Portals** (Yahoo, Orbit, COPlans, DRDC COP21) – web point of access to various services
- **Search engines** (Google) – information search
- **Social bookmarking** (delicious) – shareable web page bookmarking
- **Social tagging** – user-based rating
- **On-line forums** – message board
- **RSS feed** – publish updated sites
- **Twitter** – status updates/ blogging



Virtual Social Networking

- A relatively new class of mechanism
- Consists of a network of connections
 - ties (connections) between nodes (individuals)
- Tight – strong links (friends)
 - information shared is not usually novel
- Loose – weak links (friends of friends)
 - wide range of information is shared
- Pull-based (active) and Push-based (passive) exchange of information



DRDC Research Program: Virtual Social Networking in the Military Domain

- Information sharing and locating sources of expertise in distributed netcentric teams, team development (trust)
- Identify existing web-based social networking applications
- Requirements analysis – military community
- Virtual social networking software application
- Empirical evaluations



Building a Taxonomy of virtual communities

- **SOURCES**
 - **Social tagging** – user-based rating
 - **Digital journals** (CNET.com, Wired.com) - specialized in providing information about the high technology sector, including information technology;
 - **The Wikipedia** online encyclopedia - a consensus-based editorial process - source of up-to-date information on novel trends and products;
 - **Primary references** acquired by searching virtual communities, social networks, and collaborative “Web 2.0” sites, where biased yet specific information can be acquired on demographics, users, traffic, functionalities, etc.;
 - **Web and traffic analytics** data from sources such as Google Analytics and Alexa Internet;
 - **Directed web searches** via the Google search engine for coverage of virtual social network use in corporate and business environments.

Summary list

Taxonomy of virtual communities



- Friendship-based (generic) social networks
- Professional social networking
- Build your own social networking application
- Academic or applied research knowledge bases
- Commercial social networks
- Media-type based social networks
- Recommender systems
- Support-based networks
- Video games networks
- Virtual worlds
- Military professional and social networks



Friendship-based virtual social networks

- Virtual social hubs – connecting, interacting with connections
- Millions of users
- Primarily used for reinforcing existing relationships
- Sub-networks are organized around city/ workplace/ school
- Input is pull-based and push-based
- SixDegrees.com/ Facebook/ MySpace/ Bebo/ Orkut/ Hi5/ Plaxo/ Friendster/Microsoft Vine
- The potential for using generic virtual social networks such as Facebook and Plaxo is being investigated by some business parties and organizations
 - Treasury Board of Canada / Canadian Provincial and Municipal government organizations



Professional virtual social networks

- Building professional networks
- Focus on interactions and relationships concerning professional endeavours and business opportunities
 - Discuss interests, stay informed, share knowledge and experiences
 - Locating expertise
 - Researching sources of employment
 - Scouting for potential employees
- Input is pull-based and push-based
- Etherly/ Harris Connect/ LinkedIn/ Nethooks/ Spoke/ XING/ Yahoo!/ tribe.net/ Kickstart



Build your own virtual social network

- Create or host an entirely customized virtual social network
- Specify requirements of communities and groups
 - Layout, functions, services, interoperability with third-party software and web-based applications
- Can be closed, or partially closed
 - Reduces threat of spam, spyware, undesirable member
- Elgg/ IGLOO/ Ning/ web.alive (Nortel)



Academic or applied research knowledge bases

- Exchange of research data, ideas, opinions, judgments, diagnostics, solutions
- Medical – Healthcare
 - Biomed experts/ MyMedwork/ Sermo
- Education – Science
 - Social cataloguing of resources
 - Academia.edu/ ResearchGate
- Technology specific
 - INmobile.org/ News Reuters/ AdGabber.com



Commercial social networks

- Support product development and build trust between an individual and a product brand
 - User opinion on products
 - Querying ideas
 - Customers participate in product development, service delivery
 - Enhances product development and customer experience
- Dell IdeaStorm



Media-type virtual social networks

- Contribution of multi-media to a large community
- Flickr, YouTube, DeviantArt, Vimeo, Slideshare
 - Large volume of traffic



Recommender systems

- Geared toward recommending products and services based on user's interests and habits
 - social information filtering networks
- User's profile information is compared to reference characteristics
 - from information item
 - from user's social environment
- Predict rating that a user would give on an item
- Shopping guides, social guides, travel guides, product advertising
- Epinions.com/Genius.com/ChoiceStream.com



Support-based virtual social networks

- Ailments, illness on-line support groups
- Cooperative economics
- Ethical or religious advocacy
- Non-profit organizations
 - low cost, wide ranging large audience



Video game networks

- Video gaming has evolved into online virtual societies
 - First-person shooter hubs for games such as Halo, Crysis, Call of Duty
 - Real-time strategy on-line gaming such as StarCraft, Age of Empires, Command and Conquer (gamers engage in military strategy)
 - Massive multi-player on-line role playing games
 - immersive 3D environment, mixture of individual and group-based challenges
 - Ultima, EverQuest, World of Warcraft (11 million users)



Virtual Worlds

- Socialization networks where users meet and congregate
- Some have been designed to enhance the networking capabilities of real life communities such as the workplace
- Active Worlds/ DotSoul/ Second Life
- e-commerce – real world financing
- e-learning – e.g., military/government use (US/UK/CA/FR)
- Communities can be closed or partially closed



Military professional and social networks:

1) Generic

- Military.com (10 million members)
 - forum-based - designed to maintain and strengthen bonds between US military personnel and personnel and families; provides infrastructure for services and support; serves as hub for prospective members; informs of career and educational opportunities
- Military support groups have virtual communities
 - SpouzeBUZZ, Virtual Family Readiness Group
- India Army – virtual social network on Orkut



Military professional and social networks:

2) Simulations and virtual reality

- Simulation technology in development
- Sentient Worldwide Simulation
 - aims to mirror real-world events and places in real-time
 - used for professional training and military exercises



Military professional and social networks:

3) Social networking with information dissemination

- Created to cope with needs for rapid information exchange
- CAVNet/ TiGRNet/ Company Command/ Platoonleader/ SIPRNET/ Intellipedia



Military professional and social networks:

4) AI assisted social networking

- iLink is a support system in the form of machine learning algorithms that models a user's social network content
- Is being tested in Platoon Leader and Company Command networks and vFRG
- Helps users sort through immense quantities of content – points user to content, discussions, etc.



Networking analysis techniques

- Traffic analysis and Link analysis
 - Alexa
 - Compete and Quantcast
 - Google PageRank
 - Radian6
 - Google Analytics
 - Social Network Analysis

DEFENCE



DÉFENSE