Investigating Virtual Social Networking in the Military Domain

Jacquelyn Crebold – DRDC Atlantic
Sylvain Pronovost, Gerald Lai – CAE Professional Services

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

*Primarily pull-based*
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
- Lose – 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/ChoiceStream
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