

RESEARCH GROUP/LABORATORY:	Parallel and Distributed Systems Laboratory, Department of Computer Science
INSTITUTION:	University of Manitoba
ICT RESEARCH ACTIVITY SINCE:	1997
NATURE OF RESEARCH ACTIVITIES:	Activities within the laboratory include basic and applied research in parallel and distributed systems and the underlying technologies supporting them (compilers, networks, and operating systems). The primary focus of the laboratory is solving software issues, though hardware sometimes factors into the research. Our typical methodology involves some combination of proof of concept prototyping and simulation (applied where scale or cost prohibits actual implementation).
SPECIFIC EXPERTISE/ CORE TECHNOLOGIES:	Expertise within the laboratory reflects our current research activities. That is, virtually all aspects of systems for parallel distributed and networked computing. The laboratory also has expertise in the design and implementation of operating system features and in the performance analysis of systems through the use of prototyping on a small scale and simulation for large scale assessments where deployments are not practical.
SPECIALIZED FACILITIES/EQUIPMENT:	<p>The core facility is the Crash And Burn (CAB) cluster, hosted by a Dell PowerEdge 830 with dual core Pentium D processor running at 3.0GHz with 4GB of RAM and a 250GB RAID-1 array.</p> <p>The CAB itself is an eight-node research cluster (Beowulf style) with a variety of interconnects. Each node in the cluster is based on dual core, dual processor Opteron processors with 2GB of RAM and 250GB SATA hard drive. The cluster nodes are interconnected using Fast Ethernet, Gig Ethernet, Myrinet and CLAN switches as well as SCI point-to-point links.</p> <p>A dual core, dual processor SunFire X4200 system with 12GB of RAM and 140GB of high speed SAS hard drive storage is used for running large-scale simulations.</p>
CURRENT PARTNERSHIPS:	
INDUSTRIAL:	TRLabs Winnipeg, Manitoba Hydro and HVDC research centre (via collaboration)
ACADEMIC/INSTITUTIONAL:	Collaborations with researchers at the universities of Calgary, Lethbridge, Regina and Acadia; additional international partnerships including Istanbul Technical University and Yeditepe University in Turkey

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POTENTIAL RESEARCH INTERESTS:	Pervasive computing, sensor networks and mobile computing
COLLABORATIONS SOUGHT:	The laboratory is always interested in research collaborations and, in special circumstances, may also be interested in limited duration development projects which allow students, who are working and researching within the laboratory, to participate.
ICT INDUSTRY CATEGORY:	Internet
ICT SPECIALIZATION:	Algorithm development, data management/analysis, hardware, networks, software
PUBLIC CONTACT:	<p>Dr. Peter C. J. Graham</p> <p>Department of Computer Science E2-445 Engineering and Information Technology Complex 75 Chancellor's Circle University of Manitoba Winnipeg, Manitoba R3T 2N2</p> <p>PHONE: 204-474-8837 FAX: 204-474-7609 E-MAIL: pgraham@cs.umanitoba.ca www.cs.umanitoba.ca/~pgraham</p>