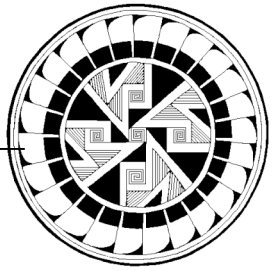
Santa Fe Institute
Workshop Series



Santa Fe Institute Business Network Topical Meeting

Adaptive and Resilient Computing Security (ARCS)

27th Sept., 2007

Imperial College,
In collaboration with the Santa Fe Institute

Workshop Organizer(s):

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Synopsis:

ARCS 2007 is the sixth meeting of a workshop designed to bring together senior industrial researchers, policy makers and leading academics in the areas of self-healing systems, resilient networks, network defence, computer immunology and robust IT systems. It is sponsored by the Santa Fe Institute, and British Telecom.

Resilient and Adaptive Defense of Computing Networks

Background

The increasing reliance on computing networks and services raises a number of security concerns. Firstly that the increasing resource value in such networks will attract greater levels of targeted attacks, (and general malicious activity via computer viruses/worms/hacking). Secondly, that the massive increase in network complexity engenders higher risks of system failure.

In order to realise such a high level goal and the wider needs of a resilient network, a substantial effort in interdisciplinary research is required. Some of the specific problems, which are addressed, include:

- Design of self-healing networks
- Optimization versus robustness
- Machine learning and defense strategies
- Dynamic stability in large-scale networks
- Self & non-self recognition, Immunology models

Slides and a discussion group for the workshop will be available at:

http://www.arcs-workshop.org

Time	Title	Presenter
8.30 – 9.00	Coffee and registration	Location: Imperial College, Electrical Eng. Bld. Rm 611.
9.00 - 9.15	Introduction	**Geoffrey West, SFI President**
9.15 – 10.00	Keynote	**Keith A. Rhodes PE, CCP** *The Mind Has No Firewall: Experiences from Active Testing*
10.00 – 10.30	Coffee	
10.30 – 11.15	Keynote	**Prof. Erol Gelenbe FACM FIEEE FIEE** *An autonomic approach to denial of service detection and defence*
11.15 – 11.45	Paper	Debi Ashenden, Cranfield University *Title*
11.45 – 12.15	Paper	Eric Ashdown, Microsoft Title
12.15 – 1.30	Lunch	
1.30 – 2.00	Paper	Miranda Mowbray, HP Labs *A Resilient Protocol from Mediaeval Venice*
2.00 – 2.30	Paper	Steve Marsh, UK Cabinet Office Assurance of systems you don't control - new public sector approaches
2.30 – 3.00	Paper	BT Title TBC
3.00 – 3.30	Coffee	
3.30 – 4.00	Paper	Mike Corcoran, CPNI R&D for Critical Information Infrastructure Protection
4.00 – 4.30	Paper	Jeremy Ward, Symantec title
4.30 – 5.00	Paper	Richard Ford, Florida Tech Univ. A Biologically-inspired security solution for MANETs
5.00 – 5.30	Discussion & close	Roundtable argument
7.00 – 9.00	Dinner	Imperial College

Keynotes

This year we have two excellent keynote speakers:

Keith A. Rhodes, PE, CCP, Chief Technologist
Director, Center for Technology & Engineering
US Government Accountability Office

The Mind Has No Firewall: Experiences from Active Testing

We are a small group that tests the security of the executive branch departments and agencies on behalf of the legislative branch. I will give an overview of what our experiences have shown as being effective break-in techniques, not just technological but social engineering techniques as well. I will also point out how social engineering is an aspect of technological failure, and is usually the root cause for the failure. Finally, I will explain the attack scenarios that we see emerging and what we have to do to counter them.

And:

Prof. Erol Gelenbe FACM FIEEE FIEE
Professor in the Dennis Gabor Chair, Electrical and Electronic Engineering Department, Imperial College London.

Title: An autonomic approach to denial of service detection and defence

His research develops probability models in the computer and information sciences. His recent work has included "Autonomic Networks" . He has contributed seminal work on the performance of random access multi-user communications, on diffusion models of multiprogramming systems, on the adaptive control and performance of virtual memory systems, on optimum checkpoints in databases, on the evaluation of database operations, and has introduced new product form queueing network models that incorporate control functions (such as workload re-routing and work remobal) called "G-networks". His work on models of spiked neurons and their learning algorithms has resulted in the design of an "autonomic" packet network (CPN: the cognitive packet network) which uses neural networks in each node for routing decisions.