

SSEI Research Task Summary – T7

Task Number: SSEI/T7

Lead Delivery Organisation : Newcastle University

Project Title : Dependability Explicit Metadata

Research Theme : *Developing Dependable Systems*

Version : 3



Objective of Work (why are we doing it ?)

Many defence systems need to be able to maintain capability whilst undergoing either imposed change, e.g. due to failure, or to support mission change. It will also be necessary to preserve dependability, a term which encompasses such properties as safety, security, availability, etc. This ability to maintain a dependable service is known as “resilience”, and is central to achieving the benefits of Network Enabled Capability (NEC), such as agile mission groups, through dynamic reconfiguration.

Many systems, including NEC, are data intensive. The use of dependability explicit metadata, that is, information about the data itself, such as its source, timeliness, independence or credibility, is a promising approach to achieving resilience hence its feasibility should be established.

Nature of Work (what is it?)

This task will investigate the support for dynamic reconfiguration of software intensive systems as a means of achieving resilience.

This task will identify, in the context of network-enabled systems, dependability properties that can be defined and stated explicitly. These will be supported by policies for governing system configuration to maintain dependable levels of service.

The work will be demonstrated by prototype tool support, which will include a monitoring and reasoning framework, to provide a “proof-of-concept” demonstration of metadata-based dynamic resilience in a network-enabled environment.

Outcomes (what will it produce/has it produced ?)

The task will produce five outputs.

- A summary report on the state of the art in dependability explicit computing and initial dependability classifications.
- Summary presentation on properties, policies and mechanisms.
- Extended report on properties, policies and exemplary application to case studies.
- Prototype tool support framework for evaluating metadata approach.
- Final report and research roadmap.

Timescales 36 month task, March 2008 to February 2011

Partners

Related Work

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