



# THE WHITE ROSE GRID

## e-Science Centre of Excellence

## DAME Distributed Aircraft Maintenance Environment

“DAME will demonstrate how Grid technology can facilitate the design and development of decision support systems for diagnosis and maintenance.”

DAME is an EPSRC funded e-Science pilot project. It will demonstrate how Grid technology can facilitate the design and development of decision support systems for diagnosis and maintenance, in which geographically distributed resources, actors and data are combined within a virtual organisation.

The DAME project exploits the emerging OGSi/OGSA Grid service architecture to demonstrate how the data management aspects of maintenance support systems can be

handled within a unified knowledge broker model. A proof of concept demonstrator is being built around the business scenario of a distributed aircraft engine maintenance environment, motivated by the needs of Rolls-Royce and its information system partner Data Systems and Solutions.

The primary DAME objectives are:

- to design a system architecture for distributed diagnostic support that takes advantage of the Grid middleware, focusing particularly on the management of the data within the Grid
- to study the performance and dependability issues associated with data Grids
- to design a distributed data store for unstructured, non-indexed data
- to develop Grid-enabled fault identification and diagnostic methods

The research challenges which will be faced include real-time intelligent feature extraction, intelligent data mining, and application of decision support techniques, where expertise and software tools are distributed across the Grid. The large databases and the need for distributed access to



Figure 1: DAME will use Grid technology to deliver diagnostic support to remote engine maintenance crew.



THE UNIVERSITIES OF LEEDS, SHEFFIELD AND YORK

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Further Information

Contact:  
 Prof Jim Austin  
 University of York Computer Science  
 email: austin@cs.york.ac.uk

The project's web pages are at:  
<http://www.cs.york.ac.uk/dame>

“DAME is funded for three years, commencing January 2002, with a budget of £3.5 Million”

the data make this a particularly challenging problem for the Grid. The project will draw together a number of advanced core technologies developed by the University consortium within an integrated Grid services system:

- AURA** – Advanced Uncertain Reasoning Architecture for Pattern Matching
- QUOTE** – Neural network based techniques for real-time monitoring applications
- CBR** – Case Based Reasoning systems for intelligent decision support

The project is leading developments for the next generation of the White Rose Grid.

DAME is funded for three years, commencing January 2002, with a budget of £3.5 Million, supporting a research team of over 30 staff. The partners are the Universities of York, Sheffield, Leeds and Oxford, and Rolls-Royce, Data Systems and Solutions, and Cybula Limited.

