

A Functional and Performance-oriented Comparison of AFS and SRB

Christopher Bayliss
National e-Science Centre
University of Glasgow
Glasgow G12 8QQ
UK

c.bayliss@nesc.gla.ac.uk

Richard Sinnott
National e-Science Centre
University of Glasgow
Glasgow G12 8QQ
UK

r.sinnott@nesc.gla.ac.uk

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1 Abstract

In this paper the Storage Resource Broker (SRB) [1] and the Andrew File System (AFS) [2] are compared and contrasted in terms of their use as a data storage for Grid based systems.

Both the SRB and AFS are distributed file systems capable of storing data produced and consumed by applications and Grid services. The SRB is well established and deployed by many projects globally include widespread deployment across the UK e-Science National Grid Service. AFS is also a distributed file system initially developed as part of the Andrew Project by Carnegie Mellon University and IBM in 1983. AFS is currently being used by the nanoCMOS project [3, 4] for providing secure access to data and applications through usage of Kerberos tokens.

While both SRB and AFS can be used as data back ends they have specific properties that make them better suited for different types of usage. In some cases this may be a critical issue where some feature is required but not available in one or both of the candidates. This paper provides a description of these differences, focusing in particular on the security models, their relative performance with a range of file sizes and their general usability. Based on this analysis we present the key criteria that projects should consider for adoption of file based data management.

2 Full Paper

The full paper will introduce SRB and AFS and their relative merits. We discuss general aspects of these technologies such as their ease of deployment, physical limitations, licensing and then focus upon detailed case studies exploring and contrasting the technologies. We focus in particular on their performance. We also show how the two technologies can either support directly or be integrated with authentication and authorisation technologies and the features they provide for security more generally.

References

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Author/s:

BAYLISS, CHRISTOPHER; SINNOTT, RICHARD

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