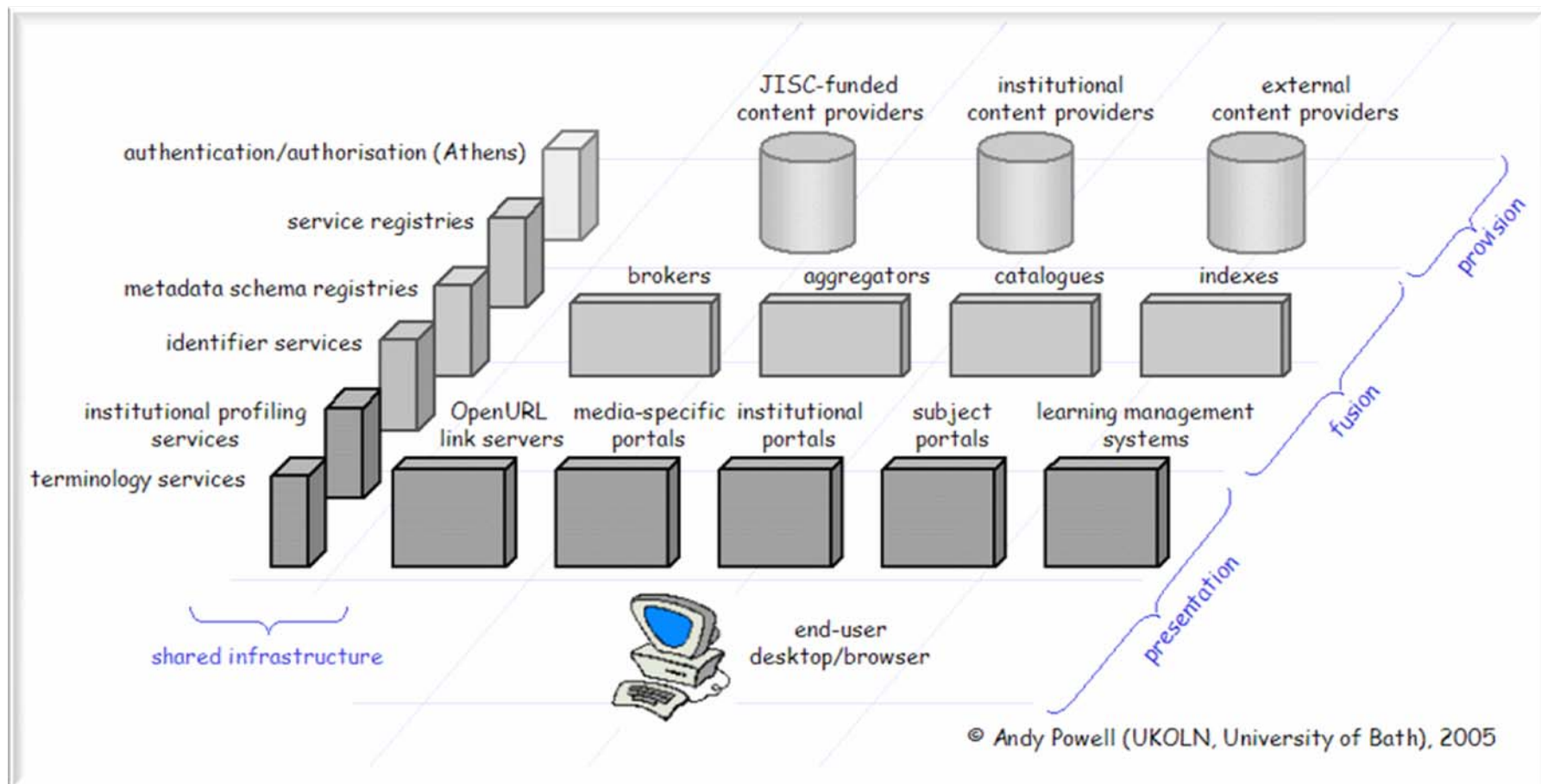


Semantically Coordinating Resources and Services

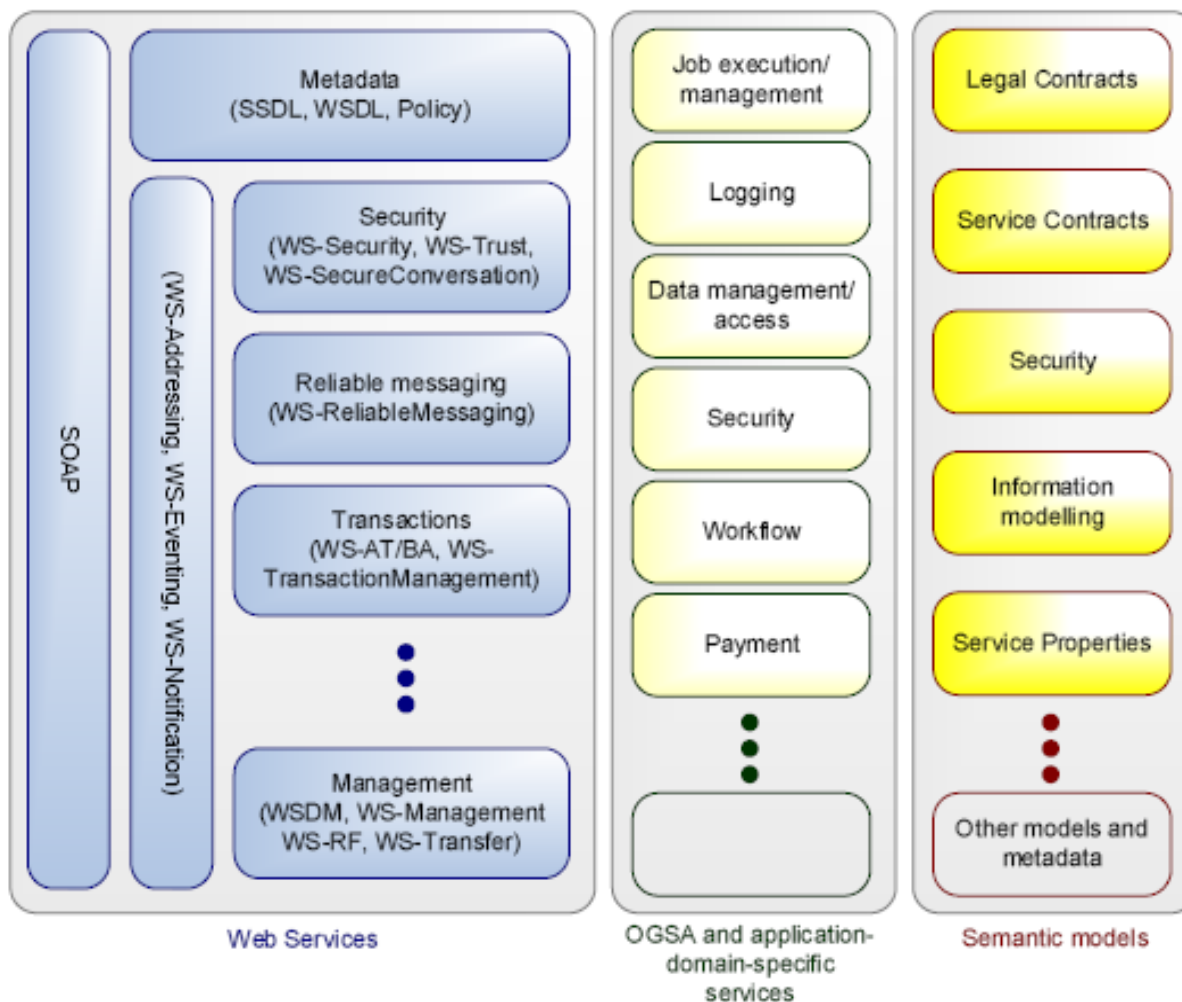
Matthew J. Dovey
Programme Director (e-Research)

Knowledge Organisation and Semantic Services

- One of the four themes of the e-Infrastructure Programme
- Focuses on exploring, developing and applying semantic grid technologies, semantics-aware services, protocols for the exchange of metadata, and the use of these to automate the creation of service workflows and virtual organisations
- Ultimate vision is goal oriented access to research infrastructures



Background – Models above WebServices



- Wealth of semantic web and semantic grid technologies:
 - Web Ontology Language (OWL),
 - RDF(S)
 - Protégé
 - OWL-S
 - ebXML Modelling
 - WSMO (Web Services Modelling Ontology)
 - WSML (Web Service Modelling Language)
 - WSMX (Web Service Execution Semantics)
 - AML (Abstract Mapping Language)
 - Dublin Core
 - Simple Knowledge Organisation System (SKOS)
 - etc.

- Funding of £300K
- Around 2-3 demonstrators in the use of semantic models for automating research.
- Development of practical applications of semantic technologies to research problems
 - Usable by researchers
- Project must **either:**
 - Build upon the existing JISC e-Infrastructure and Information Environment to demonstrate the semantic integration of resources and services from existing JISC services

OR

- Look at data issues crossing the traditional library and e-Science domains to bridge the gap between metadata for services, data, and published literature (including content, security, custodianship, long-term preservation and rights of use)

- Projects should also address at least two:
 - Development of simplified tools for collaborative development of unambiguous semantic models describing both services and content (both binary and textual data), in particular tools to bridge the gap between ‘human oriented’ and ‘machine oriented’ metadata
 - Development of well defined, simple and unambiguous semantic models that describe a facet of a service’s functional or non-functional properties
 - Development of tools supporting metadata publication and discovery, semantic composition, decomposition and behaviour prediction across multiple registries
 - Development of tools and techniques supporting the run-time monitoring and evolution of applications, based on the models
 - Investigation of existing best practice in service and grid applications engineering, in order to understand how the approaches proposed above could be utilised in order to improve design, implementation and deployment
 - Development of tools which integrate with virtual research environments
- Projects should expect to determine requirements for additional registry services

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