		Redux	Mindswap	Karma	JP	myGrid	VisTrails	ES3	ZOOM	RWS	DAKS	PASS	SDG	NCSD2K	NCSCI	Uchicago	OPA	USC/ISI
1. Characteristics of Provenance Systems	**1.1 Execution Environmer**	Workflow	Web Services	Workflow	Workflow and job submissio	Workflow	Workflow	OS-level	Workflow	Workflow	Workflow	Operating system level	Workflow	Visual Prog Env	Workflow	Workflow	Technolog independe	Workflow
		WWF		XBaya, BPEL	Condor Dagman and JDL	Taverna, Xscufl	VisTrail System		technology independent	Kepler, Ptolemy	Kepler, Ptolemy	Linux	Kepler, Ptolemy	D2K	CyberInte	VDS		VDS + Pegasus
	1.2 Execution Environment (for the challenge)							Shell Script	Kepler			Shell script					Java	
	1.3 Provenance Representation	RDMS	OWL	XML View, RDBMS	key-value pairs	RDF	RDBMS	XML view	RDBMS	Internal	Internal, XML view	Internal	SAM and WebDav	RDF	RDF	RDBMS	Internal, XML view	OWL + RDBMS
	1.4 Query Language	SQL	SPARQL	Karma query API + SQL	JPIS + JPPS queries + Perl	RDQL	SQL	ES3 Queries	SQL + Graph Extensions	Prolog	Prolog	nq query tool	Semantic Extended DASL (SEDASL)	iTQL	iTQL	SQL +XML Querying + text querying	XQuery, PQuery + Java	SPARQL
	1.5 Research Emphasis	E/R/Q/S	Q	E/R	E/R	E/R/Q	E/Q	E/R/Q	Q	E/R/Q	E/R/Q	E/R		Q	Q	E/R	R/Q/S	E/R
	1.6 Challenge	Run	Run	Run	Run	Run	Run	Run	Run	Run	Run	Run	Run	Run	Run	Run	Simulated	Run
2. Properties of Provenance Representation	**2.1 Causal Graph**	join between workflow definition and runtime info	transitive roles in ontology	recursive data provenanc (?)	ancestor and successor attributes	dataDerive transitive relation	upstream relation	graph ml as output	partial order of steps, transitive closure on input and output	transitive closure on token dependen	data lineage graphs	transitive ancestor relation	forward and backward link traversal	transitive closures over precedenc property	transitive closures over precedenc property	join between workflow definition and runtime info	transitive closure over relationshi p-assertions	join between workflow definition and runtime info
	2.2 Data Derivation vs Causal Flow of Events	E		D	E	D			D E	D E	D E	E	D	D	D	D	D E	D
	2.3 Arbitrary annotations in scope			no		yes	no	no	no	no	no	no	yes	yes	yes	yes	no	yes
	2.4 Time	yes				yes			yes		no	yes	yes				yes	
	2.5 Naming required (if yes, then what)	keys for ports and data	no	no	no	lsids for all data	no	UUID assigned to every provenance relevant object	no	no	no	filename	unique ids (urls or lsid) for data to be tracked	no	no	logical file names	no	logical file names
	2.6 Granularity of tracked data	port level (I/O) but not their contents	all data			all data	workflow design changes	file or process		uniform streams of tokens	collections hierachica trees of het. data	file	I/O of any type, but not their contents	I/O of any type, but not their contents	I/O of any type, but not their contents	file	anything	file
	2.7 Grouping mechanims								boxes								tracers	