

Communities: Requirements and Testing

L0: Applications

L1: Integration Tools

e.g. Workflows, security, pipelines, portals, etc.

L2: Libraries: SPIDAL, R, Mahout ...

Application Data Structure Abstraction

L3: Runtime Environments

Abstractions: Map Collective, Pilot Job

Implementations: e.g., MPI, Iterative MR ...

L4: Data Abstractions e.g. PilotData

Data-Cyberinfrastructure

e.g. iRODS, DFS/GFFS, SQL/no-SQL

L5: Deployment Abstractions

Templated Appliances and Virtual Clusters

L6: Execution Environments

e.g. XSEDE, OSG, Clouds