

# Current XSEDE Usage

- Using legacy TeraGrid information services
- Publishing compute information about clusters
  - Subset of XSEDE clusters (publishing GLUE2 is not yet required)
  - TeraGrid XML schema
    - Flat
  - 2 documents:
    - Public, with system description entities
    - Private, with ComputingActivities
    - Published periodically (2-5 mins)
- Used for Condor-G metascheduling and queue prediction

# Future XSEDE Usage

- Discussing a new XSEDE information system
- Expect to use GLUE2
  - Will adopt the official XML schema (if we use XML)
  - Interested in an official JSON schema (if we use JSON)
- Expect to publish additional documents
  - Documents with individual ComputingActivity (job status updates)
  - Documents with ApplicationEnvironments (installed software)
  - Documents with Services? (centralized services)
  - Documents with storage information?
  - May do other reorganizing
- Additional users (e.g. web portal, science gateways)

# FutureGrid Usage

- A distributed test-bed that is part of XSEDE
- Publishing GLUE2 information about clusters
- Defined and using a JSON rendering of GLUE2
  - Flat approach
    - Use IDs to represent associations rather than a hierarchy
  - General style of “ENTITY\_NAME”: ...
  - If an entity occurs at most once, ... is an {} object
    - “ComputingManager”: { ... }
  - If an entity can have multiple occurrences, ... is an [] array of {} objects
    - “ComputingShares”: [ { ... }, { ... } ]

# Public JSON Document

```
{
  "ComputingManager": {
    "Homogeneous": false,
    "TotalPhysicalCPUs": 536,
    "Name": "PBS",
    "TotalSlots": 536,
    "SlotsUsedByLocalJobs": 445,
    "CreationTime": "2012-10-02T13:28:01Z",
    "ProductName": "PBS",
    "Reservation": true,
    "TotalLogicalCPUs": 536,
    "ComputingService": "urn:glue2:ComputingService:torquemoab.alamo.futuregrid.org",
    "ID": "urn:glue2:ComputingManager:torquemoab.alamo.futuregrid.org",
    "ExecutionEnvironment": [
      "urn:glue2:ExecutionEnvironment:NodeType1.torquemoab.alamo.futuregrid.org",
      "urn:glue2:ExecutionEnvironment:NodeType2.torquemoab.alamo.futuregrid.org",
      "urn:glue2:ExecutionEnvironment:NodeType3.torquemoab.alamo.futuregrid.org"
    ]
  },
  "ComputingService": {
    ...
  },
  ...
}
```

```
{
  ...
  "ComputingShares": [
    {
      "LocalSuspendedJobs": 0,
      "ComputingService":
        "urn:glue2:ComputingService:torquemoab.alamo.futuregrid.org",
      "Name": "short",
      "Extension": {
        "AcceptingJobs": true,
        "RunningJobs": true
      },
      "ServingState": "production",
      "SuspendedJobs": 0,
      "TotalJobs": 30,
      "CreationTime": "2012-10-02T13:28:01Z",
      "RunningJobs": 1,
      "LocalWaitingJobs": 29,
      "WaitingJobs": 29,
      "MaxWallTime": 86399,
      "RequestedSlots": 1952,
      "UsedSlots": 64,
      "ID": "urn:glue2:ComputingShare:short.torquemoab.alamo.futuregrid.org",
      "LocalRunningJobs": 1,
      "MappingQueue": "short"
    },
    ...
  ],
  "ExecutionEnvironments": [
    ...
  ],
  "ComputingEndpoints": [
    ...
  ],
  ...
}
```

# Private JSON Document

```
{
  "ComputingActivities": [
    {
      "Queue": "short",
      "Name": "job_name",
      "CreationTime": "2012-10-02T13:28:01Z",
      "RequestedTotalWallTime": 153600,
      "LocalOwner": "user",
      "LocalIDFromManager": "168089",
      "State": "ipf:pending",
      "ComputingShare":
        "urn:glue2:ComputingShare:short.torquemoab.alamo.futuregrid.org",
      "Owner": "user",
      "RequestedSlots": 128,
      "ID":
        "urn:glue2:ComputingActivity:168089.torquemoab.alamo.futuregrid.org"
    }
  ],
}
```

```
{
  "Queue": "long",
  "Name": "job_name",
  "CreationTime": "2012-10-02T13:28:01Z",
  "RequestedTotalWallTime": 48383840,
  "LocalOwner": "user",
  "LocalIDFromManager": "177866",
  "State": "ipf:running",
  "ComputingShare":
    "urn:glue2:ComputingShare:long.torquemoab.alamo.futuregrid.org",
  "StartTime": "2012-09-28T16:31:57Z",
  "Owner": "user",
  "RequestedSlots": 80,
  "ExecutionNode": [
    "c037.cm.cluster",
    "c035.cm.cluster",
    "c034.cm.cluster",
    "c032.cm.cluster",
    "c039.cm.cluster",
    "c033.cm.cluster",
    "c038.cm.cluster",
    "c031.cm.cluster",
    "c036.cm.cluster",
    "c030.cm.cluster"
  ],
  "ID":
    "urn:glue2:ComputingActivity:177866.torquemoab.alamo.futuregrid.org"
},
]
}
```