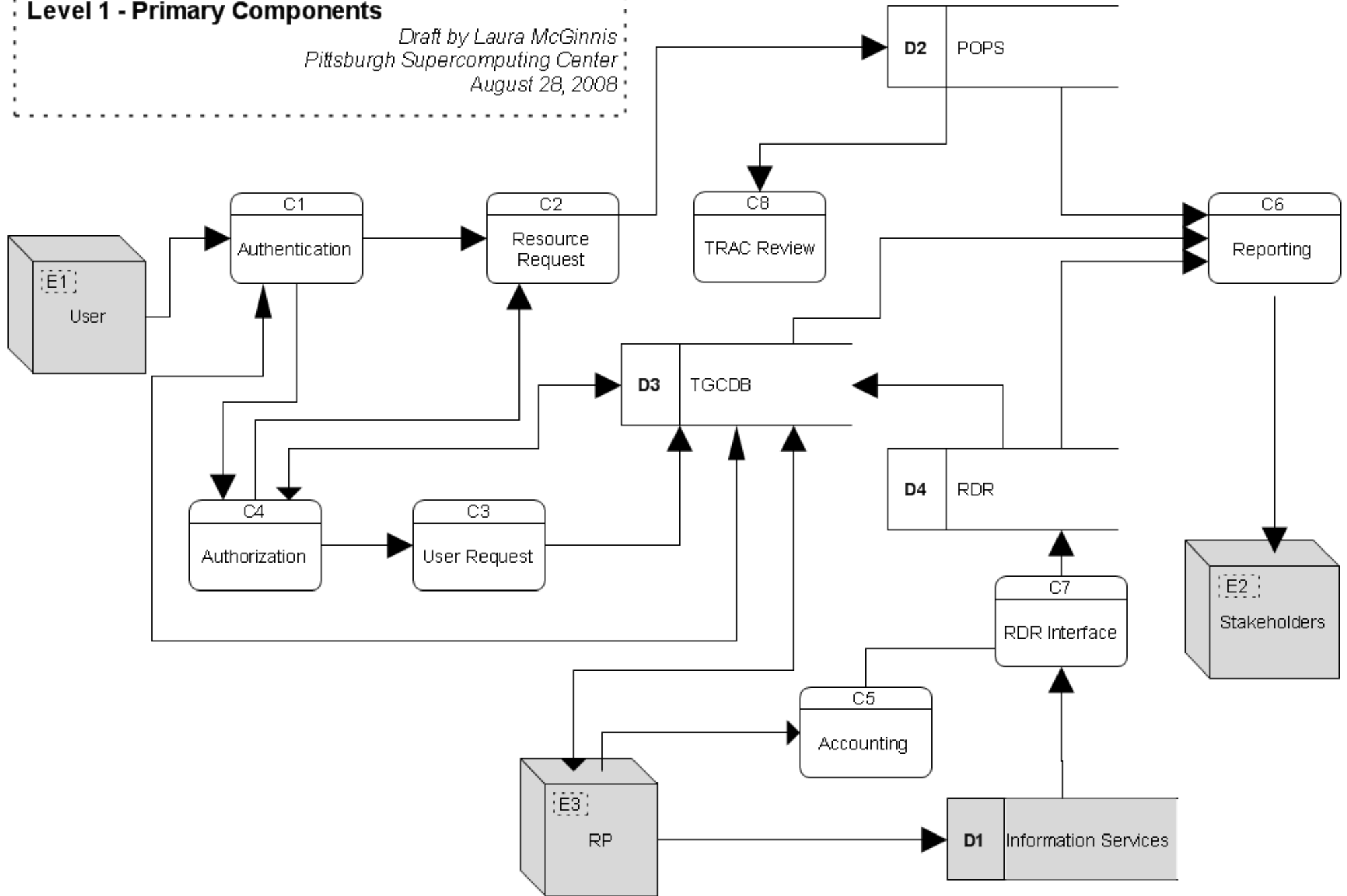


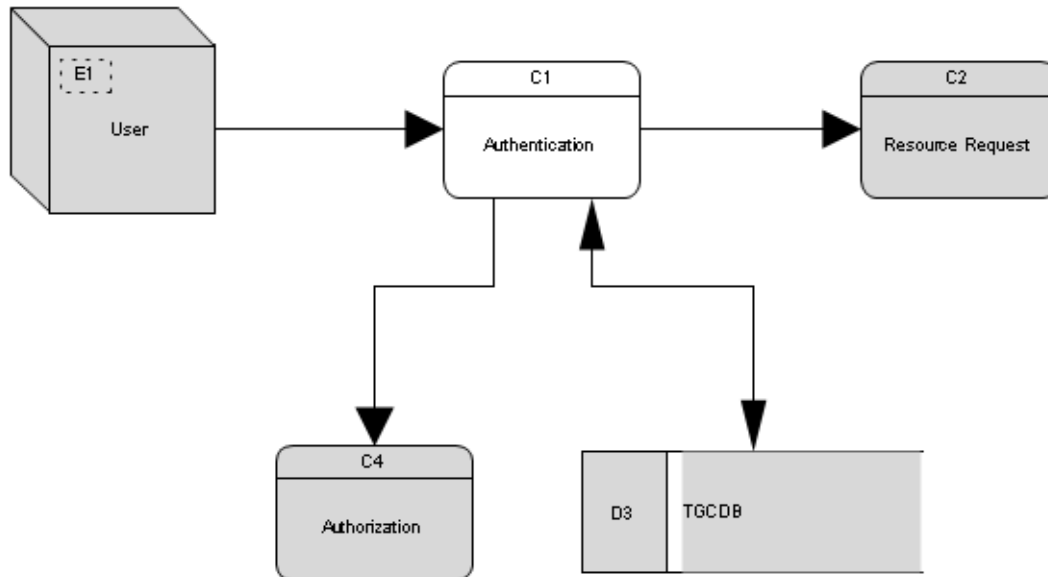
Core Services 2.0
Data Flow Diagrams
Level 1 - Primary Components

*Draft by Laura McGinnis
Pittsburgh Supercomputing Center
August 28, 2008*



Core Services 2.0
Data Flow Diagrams
Level 2 - Component C1 (Authentication)

*Draft by Laura McGinnis
Pittsburgh Supercomputing Center
August 28, 2008*



Authentication:

A user who is authenticated to the TGUP is authenticated to access POPS submission screens.

Users must be authorized to use any other Core2 functionality.

An authenticated user has passed minimal vetting - the user has a TGUP account only.

From this point, an authenticated user may submit a resource request, or request authorization.

NEW Functionality:

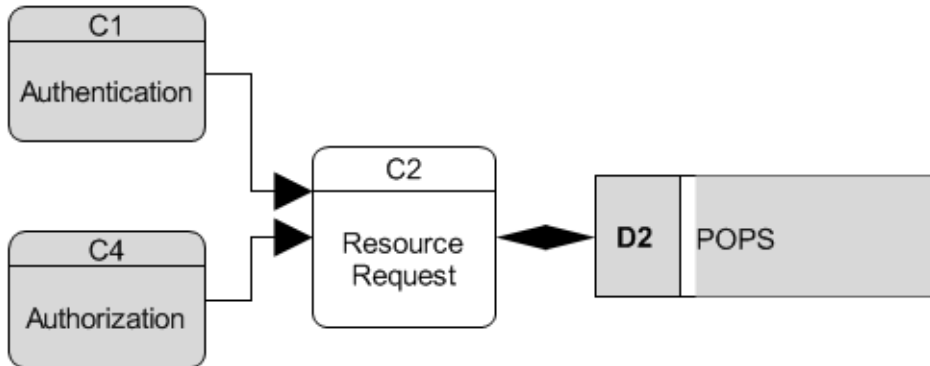
- * Users may create their own TGUP usernames and passwords*
- * Users may change their TGUP passwords without contacting User Support (tickets, etc).*
- * Authentication will support DN management and Shibboleth*

Core Services 2.0

Data Flow Diagrams

Level 2 - Component C2 (Resource Request)

*Draft by Laura McGinnis
Pittsburgh Supercomputing Center
August 28, 2008*



NEW Functionality: (see wiki doc for details)

- * *Submission Decision (first set of screens) - select from Startup, Education, TRAC*
- * *Allow for non-PI/co-PI to submit on PI's behalf*
- * *Adjustments: display PI info & confirm or change; don't require reentry*
- * *Multi-year submissions: Y/N option w/number of years; omit sum of SUs and keywords*
- * *Make sure Field of Science codes are managed correctly*
- * *Submissions: make justification requirement stronger*
- * *Adjustments: preload known data; leave abstract blank*
- * *Adjustments: present multi-year info, but don't allow changes; show elapsed time; allow multi-year as a renewal option*
- * *Supporting grants: clarify for user what is needed here*
- * *Adjustments: for supporting grants, load known data; user updates expiration date*
- * *Resource list: pull from RDR; omit all resource attribute questions; allow commas in quantities; display by categories with bullets to select, quantity fields, and check box for Special Requirements*
- * *Justification Adjustment: Clarify what is required; display request, award, and difference*
- * *Attachments: Specifically request required attachments; add Upload button for documents; remove file extension input field/ scan documents for malicious content before accepting.*
- * *POPS will be integrated into the TGUP to provide a complete, robust single point of contact*

Resource Request:

An authenticated user may submit a new resource request to POPS.

An authorized user (PI) may submit a new request or request an adjustment to an existing allocation.

Request Types:

Startup:

- * PI completes an abbreviated application
- * TG makes a limited set of resources available, and a limited amount of time on those resources
- * Requests are reviewed as they are received (quick turnaround)
- * Duration is one year

Education:

- * PI/instructor completes an abbreviated application; may include class roster if available
- * TG makes a limited set of resources available, with a limited amount of time on those resources; resource pool may be different from those available for Startup requests
- * Requests are reviewed as they are received (quick turnaround)
- * Duration is less than one year; typically one semester.

TRAC (Research):

- * PI completes full application, including justification for use of resources and any publications to date.
- * TG makes full set of resources available; PI justifies amount of allocation
- * Requests are reviewed quarterly by TRAC reviewers
- * Default duration is one year; requests for adjustments will be considered; multiyear requests may also be submitted.

Adjustments:

Renewal: to continue research activities after end of current award

Supplement: request for additional resources for current award period; does not change end-date for current award

Extension: request for more time to complete award work; changes end-date, but does not adjust allocation (award) amount

Transfer: adjust allocations (awards) between TG resources; will change allocation amounts on resources, but will not change end-dates.

Justification: respond to TRAC reviewer comments

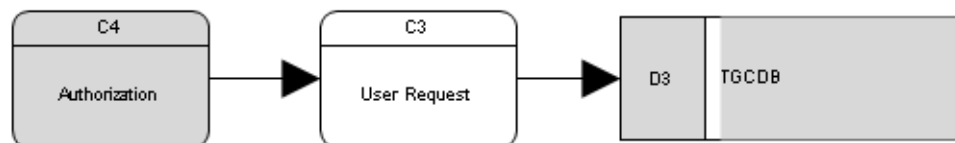
Progress Report: annual report required for multi-year awards

Core Services 2.0

Data Flow Diagrams

Level 2 - Component C3 (User Request)

*Draft by Laura McGinnis
Pittsburgh Supercomputing Center
August 28, 2008*



User Requests:

A user who has been authorized may access his/her TGCDDB user-level data. This includes contact information, demographics and usage at the user (not the project) level.

A PI (including co-PI and other designated project/allocation administrators) is a special case of user. The PI has access to award and allocation information, including project usage. S/he may also add or deactivate users on her/his project.

NEW Functionality:

** Collect and maintain user demographic information:*

** Gender*

- A. Male*
- B. Female*

** Race/Ethnicity (choose the one category that best describes you)*

- A. White, non Hispanic*
- B. Black, non-Hispanic*
- C. Asian*
- D. Hispanic*
- E. Native Hawaiian / Pacific Islander*
- F. American Indian / Alaskan Native*
- G. More than 1 Race - non-Hispanic*
- I. More than 1 Race - Hispanic*

**Age*

- A. Under 30*
- B. 30-39*
- C. 40-49*
- D. Over 50*

** Highest Degree completed:*

- A. Bachelors*
- B. Masters*
- C. Doctorate*
- D. Other*

** Is your institution*

- A. Historical Black College of University (HBCU)*
- B. Hispanic Serving Institution (HSI)*
- C. Tribal College or University (TCU)*
- D. Women's College*
- E. Majority serving institution*
- F. Other*

** Allow users to opt-out of providing demographic information, but default is for the user to supply it*

** Users maintain their own contact information*

** PIs are notified by email (rather than US mail) when users have been added to their project*

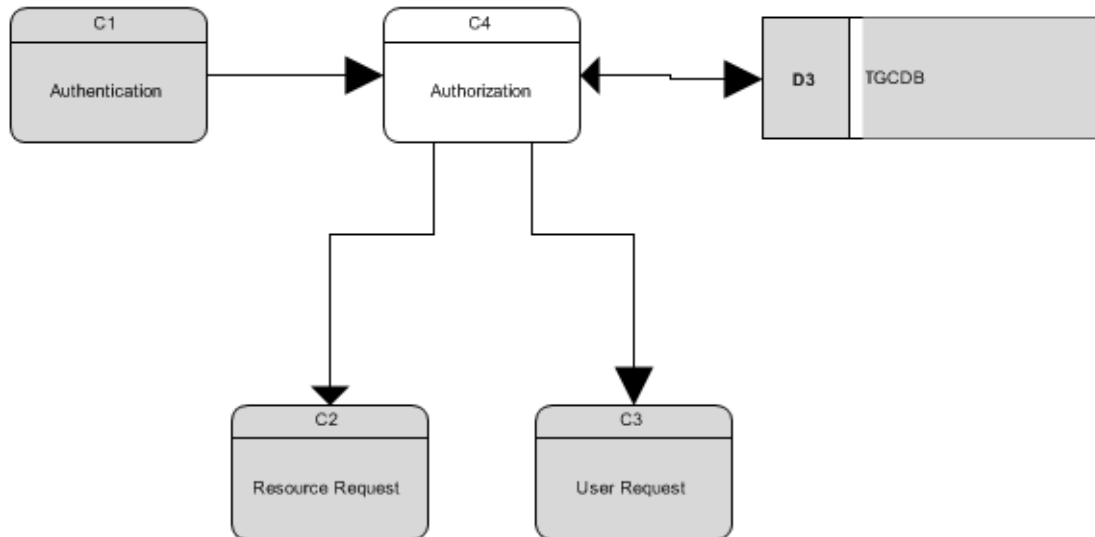
** The PI/co-PI can designate a project or allocation administrator for the award*

Core Services 2.0

Data Flow Diagrams

Level 2 - Component C4 (Authorization)

*Draft by Laura McGinnis
Pittsburgh Supercomputing Center
August 28, 2008*



Authorization:

Authorization determines which Core Services are available to an authenticated user.

The following authorization levels will be available:

TGUP: TG User Portal only; user may only submit resource request to POPS or check on existing submission

PI: A PI is a user who is responsible for one or more TG awards. PIs may request adjustments to their awards and may add or deactivate users on their award. They also may review all usage on their awards. See Component C2 for details on Resource Request.

User: A user is a person affiliated with at least one award. S/he may maintain her/his demographic and contact information and look at her/his usage on assigned awards. See Component C3 for details on User Request.

RP Admin: The RP administrator will have privileges that allow her/him to manage the projects and users who have been allocated to that RP.

Help Desk: Help desk authorization will grant particular privileges to TeraGrid staff who serve on the help desk.

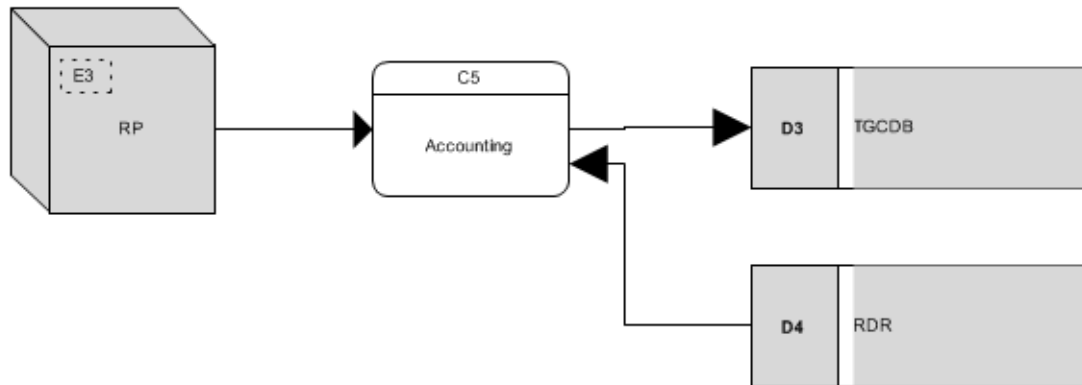
NEW Functionality:

* Maintain authorization level (i.e. user type) in TGCDDB for PIs, co-PIs, authorized PI proxies and non-PI users

* Primary support will be for single sign-on; best effort support will be provided for other login mechanisms (SSH keys, local site passwords, etc)

Core Services 2.0
Data Flow Diagrams
Level 2 - Component C5 (Accounting)

*Draft by Laura McGinnis
Pittsburgh Supercomputing Center
August 28, 2008*



Accounting:

Accounting includes all of the functionality that gets resource usage data from the RP to the TGCD B.

NEW Functionality:

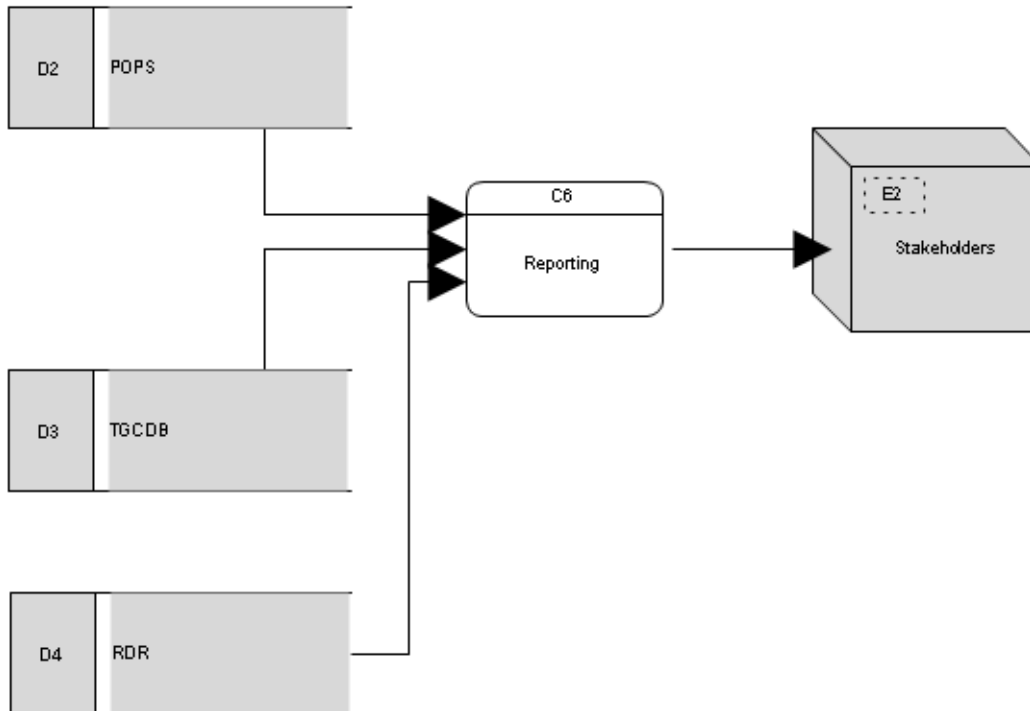
** Collect and report usage information for all resources that the RP has included in their RDR (Information Services) portfolio, including storage (see TG08 paper from SDSC for strawman implementation)*

** Tune data transfer processes to manage increased loads from Track 2 and Track 1 resources.*

** Provide tools for RPs to verify accounting data loads and totals (auditing between local and central sites).*

Core Services 2.0
Data Flow Diagrams
Level 2 - Component C6 (Reporting)

*Draft by Laura McGinnis,
Pittsburgh Supercomputing Center,
August 28, 2008*



Reporting:

Reporting is a complex process that keeps stakeholders informed of TG resource utilization. As the pool of resources grows in size and type, the reporting requirements become more complex.

The reporting module provides information to a broad group of stakeholders:

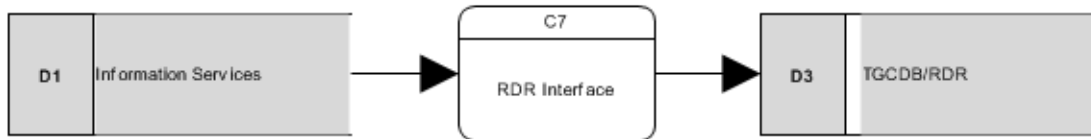
- * Users
- * PIs
- * RPs
- * TG Management
- * NSF

NEW Functionality:

- * Streamline quarterly and annual report generation for NSF
- * Provide demographic and diversity reporting on user base
- * Allow PIs and users to query usage totals for their projects
- * Base reporting on resources registered in RDR
- * Provide interface for RPs to audit their user lists against what is maintained in TGCDDB to ensure only authorized users have access to resources
- * Create user interface available through TGUP to allow authorized access to reporting data (for all authorization/user types)

Core Services 2.0
Data Flow Diagrams
Level 2 - Component C7 (RDR Interface)

Draft by Laura McGinnis,
Pittsburgh Supercomputing Center,
August 28, 2008



RDR Interface:

The Resource Data Repository provides current and historical data about all of the resources that have been registered as part of TG. This is a new entity in Core Services. RDR data is supplied by TG Information Services. The Information Services data is maintained by the RPs via the Globus MDS at each RP.

New Functionality:

* Resource Publishing (to be provided by Information Services group): An interface/instructions will be provided to RPs to allow them to maintain their resource data. In addition to existing resources, RPs will be able to enter "near-service" or "friendly" resources early enough that they can be included in the available resources for the TRAC process.

* RDR Database: The RDR schema will be added to the TGCDB. RDR data will include the current records from Information Services as well as the historical versions of the resource information, where changes are relevant to TG requests and reporting.

* RDR DB Loading: scripts will be developed to facilitate the timely refresh of data between TG Information Services and the RDR

* RDR Queries: Scripts/APIs will be developed to allow other components of Core Services 2 to access RDR data as needed.



TRAC Review:

The Allocations RAT has reviewed the existing xRAC process and made significant recommendation to improve the user and reviewer processes. Those recommendations, where relevant, are included in this component description. See *Component C2- Resource Request for issues pertaining to user actions within POPS. This Component addresses changes to review and proposal administration.*

Interfaces:

Reviewers:

- * Allows reviewers to enter evaluations and feedback for their assigned proposals.
- * Should be aware of Conflicts of Interest
- * Should not reveal demographic information about the PI/co-PI.

Administrator(s): Allows TRAC Coordinator to perform administrative tasks related to the review process:

- * Open and close the submission site according to the TRAC schedule
- * Register reviewers
- * Assign proposals to reviewers for evaluation; needs to account for Conflicts of Interest
- * Enter award decisions and propagate to TGCDB
- * Maintain reviewer lists for Education and Starter requests
- * Forward Education and Starter requests to reviewers in a timely manner as they are received (could be automated)

New Functionality:

* Education & Startup Requests:

- * Maintain lists of appropriate reviewers
- * Assign requests for review as they are submitted; turnaround time for these requests should be minimal
- * Accommodate changes outlined in *Component C2- Resource Request*
- * Accommodate additional Impact and Metric data collection (see wiki for details)
- * Propagate awards through to TGCDB without requiring reentry and without passing through NCSA's local (RP) system
- * Minimize production time required from POPS staff:
 - * Available resources can be listed from the RDR for each TRAC cycle
 - * Allow TRAC Coordinator to generate and distribute TRAC meeting materials