Research Cyberinfrastructure at UCSD

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A brief history ...

- 2008: Campus-wide needs assessment

- April, 2009: *Blueprint for the Digital University* issued

- April, 2010: *Cyberinfrastructure Planning and Operations Committee Report* issued
  - report accepted, business plan created

- January, 2011: RCI Oversight Committee formed
  - business plan accepted, oversight committee charged
RCI Oversight Committee charge

• Guide the development of an enhanced RCI

• Set policies and coordinate RCI elements

• Modify the CIPOC-proposed business plan as needed

• Continually seek opportunities for cost savings and recommendations for their implementation

• Provide accountability and document accomplishments on a regular basis
RCI elements

- High-Performance Computing
- Data Center Colocation
- Storage & Backups
- Data curation
- Networking and other services
High-performance computing

- Triton Resource: a cost–effective and accessible high-performance computing system primarily for UC San Diego and UC researchers

- The Triton Affiliates and Partners Program (TAPP): high performance cluster computing time at a rate of $0.06/SU (1 SU = 1 service unit = 1 core-hour on Triton Cluster)

http://www.sdsc.edu/us/tapp/tapp_pricing.html
Data center colocation

- Standard rack provided with ISO-Base seismic protection, aisle containment, and 2x30A power distribution

- 10+ Gb networking fabric connectivity both throughout SDSC aggregation fabric and into CENIC

- 24/7 operations staff providing facility oversight and emergency "remote hands" hardware assistance

http://rci.ucsd.edu/services/colocation.html
## Storage & backups

**Data Oasis (available Summer 2011)**

<table>
<thead>
<tr>
<th>Storage Type</th>
<th>Cost per Terabyte-Year</th>
<th>Availability</th>
<th>Application Performance</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Parallel File System</strong></td>
<td>Free while running on an SDSC HPC machine. Medium-term parking space available by special arrangement with Project Storage purchased in an equal quantity.</td>
<td>99.5%</td>
<td>Up to 100 GB/s</td>
</tr>
<tr>
<td><strong>Project Storage</strong></td>
<td>• Standard Availability, Single-Site Durability - $600&lt;br&gt;• High Availability, Multiple-Site Durability - $900</td>
<td>• 99.5%</td>
<td>• Up to 1 GB/s&lt;br&gt;• Up to 1 GB/s</td>
</tr>
<tr>
<td><strong>Cloud Storage</strong></td>
<td>• Single-Site Durability - $390&lt;br&gt;• Triple Copy - $650</td>
<td>• 99.5%</td>
<td>• Up to 100 MB/s&lt;br&gt;• Up to 100 MB/s</td>
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</tbody>
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Data curation

- **Data curation**: Managing data to ensure they are fit for contemporary use and available for discovery and reuse.

- **Archiving**: Ensuring that data are properly selected, appraised, stored, and made accessible. The logical and physical integrity—including security and authenticity—of the data are maintained.

- **Preservation**: Ensuring that items or collections remain accessible and viable in subsequent technology environments.

http://rci.ucsd.edu/services/data-curation.html
Data curation pilots

• Identify five researchers/research teams

• Two year duration

• Full data management lifecycle

• Mix of UCSD and UC3 resources
Networking and other services

• Web & Database Hosting

• Oracle Database Hosting

• 10GigE research network throughout campus

http://rci.ucsd.edu/services/other-services.html
Data management plans

• Resources and contacts available to UCSD researchers

• Examples from submitted proposals

• Guidance, tips and recommendations for DMP preparation

http://rci.ucsd.edu/dmp/index.html
Resources:

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Data Management Plans:

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