	Scientific Computing Needs For XXX		
1.0	**Author**	**Date**	**Initial Draft**

This document is intended for high level planning purposes only. Acquisitions will require more detailed information. **(Blue entries shall be customized or removed)**

Purpose: To enable capacity planning with multi-year projections. To establish baseline commonalities to inform technical roadmaps. To establish cases with special requirements.

A. **Program/ Programs:** **Name of program**

B. **Description:** **Describe existing architecture**
Computing model
Anticipated changes

C. **Fundamental Drivers:** **ie, trigger rates, reconstruction times**
Contractual obligations
Collaboration MOUs

D. **Funding:** **Yearly, cyclic, at need, life cycle only; ramp down.**
Is the hardware "built to cost"?

E.. **Estimated number of total users:** **n1**

F. **Estimated number of concurrent users:** **n2**

G. **Usage patterns:** **ie: steady use**
routine peaks and valleys
periodic bursts
interactive/ batch

H. **Wide Area Networking:**
H1. **Transfer Rates:** **MB/ sec**
H2. **Specific Locations:**
H3. **Additional Constraints:** **such as firewalls**

J. **Storage:**

J1. **Storage Policies:**   describe any policies that impact storage usage or requirements

J2. **Storage Tier 1:**

1. **Uptime requirements:**   nn%
2. **Average file size:**   GB
3. **Peak throughput:**   MB/sec
4. **Average throughput:**   MB/ sec
5. **Estimated mix of read/writes:** m/n
6. **Usage patterns:**   multiple users etc.
7. **Concurrency:**   attempt to quantify the stress
8. **Data accumulation:**   TB/year

J3. **Storage Tier 2:**

1. **Uptime requirements:**   nn%
2. **Average file size:**   GB
3. **Peak throughput:**   MB/sec
4. **Average throughput:**   MB/ sec
5. **Estimated mix of read/writes:** m/n
6. **Usage patterns:**   multiple users etc.
7. **Concurrency:**   attempt to quantify the stress
8. **Data accumulation:**   TB/year

J4. **Storage Tier 3:**

1. **Uptime requirements:**   nn%
2. **Average file size:**   GB
3. **Peak throughput:**   MB/sec
4. **Average throughput:**   MB/ sec
5. **Estimated mix of read/writes:** m/n
6. **Usage patterns:**   multiple users etc.
7. **Concurrency:**   attempt to quantify the stress
8. **Data accumulation:**   TB/year

K. **Tape Projections:**

    (repeat as needed if there are complex tape requirements)

1. **Primary intention:**   archival, back-up, live storage or a mix
2. **Peak rate to tape:**   MB/Sec
3. **Peak rate from tape:**   MB/Sec
4. **Sustained rate to tape:**   MB/Sec
5. **Sustained rate from tape:**   MB/Sec
6. **Data Accumulation:**   TB/year
7. **Data decrements:**   TB/year

L. **Processing:**

(repeat as needed to capture needs for different phases of the computing model: ie Simulation, reconstruction of raw data, analysis)

L1. **Systems with High Density Interconnects:**

1. **Data transfer rates:**
2. **To/from storage:**   MB/Sec
3. **Other I/O considerations:**
4. **Average cpu/job:**   Local Units
5. **Concurrency/ job:**
6. **Processing capacity:**   in <local unit>
7. **Usage patterns:**
8. **GPU/CPU:**
9. **Scheduling:**

L2. **General Compute Farms:**

1. **Data transfer rates:**
2. **To/from storage:**   MB/Sec
3. **Other I/O considerations:**
4. **Usage patterns:**
5. **Number of simultaneous jobs:**   n
6. **Number of simultaneous users:**   n
7. **Multiple cores:**   ?
8. **Processing Capacity:**   <local unit>

M. **Management Layer:**   scheduler/Grid/cloud interfaces

N. **Experiment specific needs for database machines.**