

Report of the Cyberinfrastructure Advisory Committee to the GPN Executive Committee

Approved 9/1/2010

Executive Summary

In 2009, the GPN Executive Council charged the GPN CI Advisory Committee (CIAC) with the task of a) assessing cyberinfrastructure (CI) needs in the GPN community beyond network connectivity and b) formulating a "...CI plan to make it possible to achieve [GPN Strategic] objectives and distinguish the role of GPN from that of campus and state members and national organizations, and to partner with these organizations in ways that compliment and advance the mission of GPN members." CIAC members were selected from among the GPN CI community to be representative of the GPN membership. An external advisor from Texas A&M University was also appointed to the CIAC.

The committee developed two survey instruments. The first survey was designed to identify areas of CI need and the second survey was designed to identify high priority CI services that GPN might offer to fill those needs. **With the exception of several items in the Networking category** (included for a validity check), the service items in Survey 2 represented those the CIAC **identified as representing a potential area of need in the GPN region**. Table 6 below contains service categories and the highest priority services in that category (top 50% of all services). Table 7 presents all services scaled and ranked for most to least important, irrespective of category.

Based on the results of the two surveys and on deliberations by the CIAC, **it is recommended that GPN take action, immediately, to prioritize service categories and to implement the highest priority services in high priority service categories (Table *). It is further recommended that the GPN Executive Council charter a CI Program Committee, similar to the GPN Networking Program Committee, to develop and to oversee the execution of these services, to assure quality and to develop a plan for cost recovery for any new services that require additional funds.** Finally, in the second survey, the respondents overwhelmingly identified faculty, researchers and graduate students as the target audience for GPN services. **The CIAC recommends that the GPN Executive Council continue to seek out and obtain representation and input from faculty and researchers on their deliberations.**

Recommendation 1: Communicate the results of the CI Advisory Committee's work to the GPN community and seek feedback on the rest of the recommendations.

Action 1: Discuss the results of the CI Advisory committee's work with all GPN membership through a conference call or webcast.

Action 2: Set up a page on the GPN Wiki to receive written feedback.

Action 3: Prioritize categories of service and individual services based on this and future community input.

Recommendation 2: Implement services that meet the top needs as identified through the second CI survey. **The networking needs are currently being addressed by the GPN Network Program Committee.**

Action 4: Form a *GPN CI Program Committee* to develop service descriptions and service level agreements for each service to be implemented. (See full report for committee composition.)

Action 5: Develop processes for:

- Seeking community input on service descriptions with a timeframe for comments.
- Resolving funding issues for new services, and working with the GPN budget process to ensure adequate funding to roll out services in a timely manner.
- Rolling out new services.

Action 6: Prepare service descriptions to address the needs on the "top 24" list. All service descriptions to be complete and ready for community feedback by the beginning of Q1 2011, or within four months of start.

Each service description will include a pro forma service level agreement, organization and staffing, assessment metrics and plans, implementation plan, estimates for initial and recurring costs not

already included in the GPN budget, and sources of funding if needed. These service descriptions will be vetted and approved by the GPN Executive Committee prior to implementation.

Recommendation 3: Implement an annual service assessment process to measure quality and usage of services.

Action 7: The *CI Program Committee* will combine the individual service assessment plans contained in each service description together with a process for assessing and communicating the quality and usage of each service, and implement these plans.

I. Background and charge to the committee

The GPN Executive Committee empanelled the CI Advisory Committee in late 2009 to explore cyberinfrastructure (CI) needs in the GPN community beyond network connectivity. The committee is charged with “...*formulating a CI plan to make it possible to achieve [GPN Strategic] objectives and distinguish the role of GPN from that of campus and state members and national organizations, and to partner with these organizations in ways that compliment and advance the mission of GPN members.*” This report details the methods used to determine CI needs within the GPN community, discusses the findings, and presents a set of recommendations for further action to the EC.

GPN’s mission is to “To support the research and education missions of our members through the use of advanced cyberinfrastructure” The GPN Strategic Plan provides a framework for expanding CI services through Strategic Direction 2 to “Actively support the development of and provide support to research and education initiatives among the membership that extend or use cyberinfrastructure in novel or unique ways.” This strategic direction is supported by several goals:

- Identify and promote promising areas for CI and research collaboration among members;
- Facilitate GPN member institutions in developing a regional CI plan for sharing resources and expertise; and
- Facilitate, as appropriate, shared access to GPN member resources and GPN owned resources.

A critical step in accomplishing the GPN strategic goals listed above was to form a study group (the CI Advisory Committee) to explore CI needs within the GPN community as the basis for recommendations for further action to the Executive Committee. The committee, selected from the larger GPN CI working group, includes representatives of each of the six GPN state members and an external advisor from Texas A&M. Members of the CI Advisory Committee are listed in Appendix A.

The work of this committee is bracketed by two NSF-supported workshops, one in 2008 examining the role of cyberinfrastructure in bridging from campus to national computing facilities, and the second in 2010 focused on sustainability of HPC centers. The results of these two meetings are important context for discussions among GPN member institutions about what CI is appropriate at what level (campus, regional and national), and what the role of regional entities is in supporting research and creative activity by building bridges between resources local to one campus and those at other institutions in the region or to national HPC facilities.

The 2008 workshop, “Developing a Coherent Cyberinfrastructure from Local Campus to National Facilities: Challenges and Strategies”¹, was held at Indiana University Purdue University at Indianapolis (IUPUI). It was supported by the NSF and sponsored by EDUCAUSE and CASC. Participants at this workshop considered the challenges of bridging from campus-level research computing environments including expertise, computing, storage, instruments and networks, to national supercomputer centers. The primary recommendation of this workshop was that a more coherent approach is needed to developing CI across all levels from individual or campus resources up to national supercomputer centers. Supporting this overarching goal of better integration of CI were ten strategic recommendations and twenty eight tactical recommendations across four focus areas:

- *Harnessing campus and national resources* – Campuses should work with each other and federal agencies to develop and promote a coherent, comprehensive set of networking, computing and data facilities that are appropriate and secure for a broad range of CI-intensive research applications; campus CI leaders should be involved in the development of national facilities (e.g. the TeraGrid and Open Science Grid) as a prerequisite for including campus perspectives and needs in these projects.
- *Information life cycle: accessibility, usability and sustainability* – funding agencies and institutions must work together to solve immediate and ongoing data preservation and reuse

¹ <http://www.educause.edu/Resources/DevelopingaCoherentCyberinfras/169441>

needs, metadata, discovery and publishing standards, and to define research agendas in these areas.

- *Identity management, authentication and authorization* – to promote interoperability of CI, agencies, campuses and national and state organizations should adopt a single, open, standards-based system for identity management, authentication and authorization.
- *Human resources and broader impact* – through undergraduate and graduate curricula, training and professional development, agencies need to support the development of a pipeline of qualified experts who can realize the full potential of cyberinfrastructure.

A key issue identified and tagged for follow-up at the 2008 EDUCAUSE/CASC workshop was how to sustainably fund local research computing infrastructure and services in the context of regional and national resources, ensuring that the goals of individual researchers, their institution and their funding agencies are met. A second workshop, the “NSF Workshop on Sustainable Funding and Business Models for High Performance Computing Centers” was held in May of 2010 at Cornell University. This workshop brought together HPC center directors, VPs for Research, heads of research computing support units and current and former NSF program officers to discuss business models for funding research computing at the campus and regional level. The core issues discussed were the universal need for computing in research and creative activity and extreme pressures on university and research IT organizations to deliver more service for less funding. Most if not all university and state/regional research computing support units are facing high demand, rapidly changing requirements and inadequate funding in a very dynamic and challenging economic climate.

In the discussion among workshop participants the lessons learned were offered as best available practice. Most of these are common sense and applicable to many kinds of organizations. Research computing support units are not exempt from applying them, and to actively include them in strategic planning greatly improves the sustainability of research computing support efforts. A few of the key lessons learned include:

- *Funding* – Funding for research computing must be diverse to maintain stable income; create a strong value proposition for the services you offer that includes value for each constituent group (consumers and providers); get support and involvement of CIO, VPR, CFO and Provost; understand the technical requirements and financial limitations of researchers at your institution and develop services that meet these requirements; perform detailed cost analyses of services to fully understand component costs and their relationships; listen to your customers and be willing to adapt; evolve services to meet changing needs and user bases. Respond as appropriate to new sources of funding if these result in sustainable improvements in service offerings or levels.
- *Metrics* – Develop a clear mission statement that supports the goals of all constituent groups; Develop metrics that reflect the mission and value proposition of the support unit, and the goals of constituent groups; use metrics to quantitatively direct the evolution of services and to provide input to support decisions about funding.
- *Organization* – Scope of support the center/unit provides (local, regional, national) is a critical decision and determines the form of the organization and relative strengths of funding options; create advisory boards to represent user needs, for service definition, for financial decision making, fund raising, and for communicating with specific interest groups within the constituent base.

Further context arises from participation by most GPN member states in the NSF EPSCoR program which requires EPSCoR jurisdictions to develop cyberinfrastructure plans as a prerequisite for participation in CI-related programs. GPN’s role with respect to CI must include careful integration of GPN regional CI efforts with state EPSCoR CI plans. This also presents opportunities for GPN to support CI plans from multiple jurisdictions and to offer a platform for regional CI development that enhances and extends these per-jurisdiction plans.

With this context in mind, the need to bridge from campus to national resources, the need to develop a coherent CI at multiple levels and the need to develop sustainable business models for CI services, and

the opportunities presented by participation of GPN members in the NSF EPSCoR program, the committee started by assessing CI needs and interests across GPN institutions.

II. Methodology and timeline

Methodology

The charge to the committee, to develop a plan that addresses GPN strategic goals, distinguishes GPN's role from that of campus and national organizations and builds partnerships with GPN members to advance their missions was addressed in three phases:

- fact-finding about CI needs and interests in and between member institutions through surveys of faculty, staff and administrators at member institutions,
- analysis of results and prioritization of potential responses to members' needs and interests by GPN, and
- development of a plan to address the highest priority needs.

The committee developed two survey instruments for faculty and staff using cyberinfrastructure broadly defined in their research or support activities. The first survey was aimed at a basic understanding of what CI is currently available and how they are being used, and what additional resources or services are needed. Many of the questions in the first survey included both a high/medium/low priority scale question indicating interest in or need for a capability, and a free form text input so additional information could be provided. These comments were extremely important for understanding needs in detail and in refining the survey instrument to address specific interest areas in the second survey.

The first survey identified several potential areas of need. A second survey aimed at quantifying the interest in these areas was designed and run. The CI plan presented in Section V below ("GPN CI Plan") is based on rank ordering of services identified in the first survey and their rank ordering from the second survey.

Timeline

The committee's work spanned the first three quarters of 2010:

January 25	First Meeting
February	CI Needs Assessment Tool Developed
mid-March	CI Needs Assessment Survey Distributed
March 31	CI Needs Assessment Survey Completed
April	Data from first survey analyzed
May	Second survey instrument developed
June	Second survey issued
July	Second survey analyzed and report drafted
August	Report with recommended actions to Executive Committee

III. Results of the initial survey

Table 1 below shows the respondents per state for the first survey. Each member of the committee contacted representatives of campuses in their states to assist in the distribution of calls to participate in the survey. Faculty, staff, graduate students and administrators were all included in the potential pool of respondents and demographic questions were included in the survey. The initial survey had a sample size of 410 responses.

Table 1. Sample sizes by state for Survey 1.

State	Survey 1 responses (N=410)
Arkansas	9
Iowa	2
Kansas	27
Missouri	231
Nebraska	30
Oklahoma	61
South Dakota	31
GPN	2

A respondent's use of high performance computing was used as a general marker of interest in cyberinfrastructure. Table 2 below shows respondents grouped as potential users of high performance computing facilities on their campus or at national facilities. Within each group respondents were classified as "users", "aware" (they know about available resources but do not use them regularly in their work) and "not aware" (don't know about available resources and don't use them). These metrics were used to understand responses to questions about the need for specific kinds of CI capabilities and to gauge the general level of awareness and sophistication of the respondent pool. About 80% of the respondents used or were aware of campus HPC facilities, and a lower percentage (57%) "used" or "were aware of" national HPC facilities. Respondents included in the "users" and "aware" categories were classified as "knowledgeable" users who likely have more immediate and sophisticated CI needs.

Table 2. Respondent profile for Survey 1.

Grouped by Campus HPC Use	
HPC Campus Users*	55%
HPC Campus Aware*	25%
HPC Campus Not Aware	20%
N	410
Grouped by Regional/National HPC Use	
HPC Regional/National Users*	22%
HPC Regional/National Aware*	35%
HPC Regional/National Not Aware	42%
N	410

Table 3 below presents the highest ranking needs emerging from the survey. Each item was ranked high, medium or low priority. The first group of needs includes items marked "high" priority more often than "medium" priority by "knowledgeable" respondents, and therefore potentially represent the most pressing unmet needs.

Table 3. Prioritized needs from Survey 1.

Items considered high priority more often than medium priority by “knowledgeable” respondents
<ul style="list-style-type: none"> ▪ Inventory of CI resources available across my campus/organization ▪ Inventory of CI resources available regionally and nationally ▪ Searchable knowledgebase of CI expertise (people, tools, applications, resources) in my field. ▪ Opportunities for collaboration ▪ Help in identifying possible revenue streams for my/my campus/my organization's CI efforts ▪ Help in identifying cost containment/avoidance strategies for my/my campus/my organization's CI efforts
Top needs for all respondents
<ul style="list-style-type: none"> ▪ Online demonstrations of emerging CI-related technologies ▪ Regular email communication on the latest developments in CI ▪ Affinity group of individuals who communicate regularly to discuss developments in CI ▪ Assistance in CI resource discovery ▪ Assistance in identifying potential collaborators ▪ I would like to use CI for classroom teaching ▪ Help in promoting my/my campus/my organization's CI work to regional and national organizations ▪ Help in promoting my/my campus/my organization's networking work to regional and national organizations

The results of the first survey also included free text responses aimed at discovering what was not included in the survey questions. These free text responses are summarized below in Table 4.

Table 4. Results from Survey 1 free text responses.

Priorities from open-ended (free text) responses
Security
Bandwidth
Specialized CI tools for research
Specialized software
Specialized hardware (e.g., visualization)
Shared Data Resources
Shared computational resources

IV. Results of the second survey

Although Survey 1 was useful and highly indicative of CI needs across the region and across many types of users, responses from the free-text responses indicated a need to gain clarity about specific services GPN could provide and the level of interest in them as the basis of a CI plan. This analysis resulted in a second survey developed in May and issued in June. The second survey consisted of questions ranking a set of possible GPN CI services and support activities. This set was organized in the survey as groups of services that respondents were asked to rank in priority order (highest priority through lowest) within each

group. Table 6 on the following page shows the service groups and specific services included in Survey 2. Table 5 provides some demographics from the second survey.

Table 5. Some demographics for Survey 2.

State	Responses (N=127)	Principal job title	Responses (N=127)
Kansas	21	Professor	54
Missouri	11	Director, chair, project manager	15
Nebraska	24	Researcher, scientist	13
Oklahoma	20	Support staff	14
South Dakota	46	Other/not identified	31
Other/not identified	5		

Table 7 contains all survey items in order of decreasing interest as indicated by the normalized score for each item. Interest in all services included in the survey by normalized score ranged from 0.92 to 0.34 out of a maximum of 1.0 (“no responses” for a given question were excluded from the analysis.) The lowest score in the upper half was 0.59 indicating that there was somewhat strong agreement about what the most important items in a service group were, and less agreement about the importance of the remaining items. This observation led the committee to focus on items scoring in the top half (24/49). The number of items in each service category ranked in the top half ranges from 2 to 4 out of a maximum items in each survey question of 3 to 8. The leftmost column of Table 6 gives the total number of items in each service category in the survey. A couple of categories, “Education and training” (4 out of 5 possible choices) and “Communication” (2 out of 3 possible choices) had a disproportionate number of choices scoring in the top half indicating these as areas of particular interest.

Table 6. Highest ranked services from Survey 2 (questions 15-23) listed in order of decreasing priority within each group.¹

Service Group	Service
Computation (question 15, 6 choices)	<ul style="list-style-type: none"> ▪ Provide high performance computing facilities for research, education and training at a regional level (2) ▪ Assist me to access and use high performance computing at other institutions in the region (22)
Data storage services (question 16, 6 choices)	<ul style="list-style-type: none"> ▪ Provide data storage facilities for research, education and training at a regional level. (6) ▪ Provide a way for me to store and catalogue my datasets (13) ▪ Provide a way for me to access and use storage resources at institutions in the region. (20)
Networking services ² (question 17, 4 choices)	<ul style="list-style-type: none"> ▪ Providing high bandwidth connectivity and related services (e.g. IPv6, VLANs, Internet2 ION service support, etc.) to other universities and other research institutions in the US. (1) ▪ Providing high bandwidth connectivity and related services to other universities and other research institutions outside the US. (19)
Education and training (question 18, 5 choices)	<ul style="list-style-type: none"> ▪ Organizing workshops to learn about advanced tools for research. (3) ▪ Providing online demonstrations of emerging cyberinfrastructure-related technologies. (15) ▪ Organizing workshops to learn how to develop and improve campus tools. (16) ▪ Organizing an annual meeting focusing on using advanced tools across the region. (21)
Collaboration (question 19, 8 choices)	<ul style="list-style-type: none"> ▪ Maintaining a searchable database of opportunities for collaboration in my area of research. (11) ▪ Providing assistance in identifying potential research collaborators. (14) ▪ Facilitating grant requests across multiple campuses. (17) ▪ Helping to make contacts with individuals with specific cyberinfrastructure expertise (24)
Communication (question 20, 3 choices)	<ul style="list-style-type: none"> ▪ Monthly newsletter on technical advances/uses across GPN and nationally (5) ▪ Providing regular email, blog, twitter, etc. communication on the latest developments in cyberinfrastructure. (7)
Help (question 21, 5 choices)	<ul style="list-style-type: none"> ▪ Maintaining online searchable help for cyberinfrastructure tools. (4) ▪ Providing a centralized help desk model of support for locating and using regional and national cyberinfrastructure technology in your research. (12)
Expertise and resource referral (question 22, 4 choices)	<ul style="list-style-type: none"> ▪ Maintaining a searchable database of cyberinfrastructure resources available across my campus or organization. (8) ▪ Maintaining a searchable database of CI expertise (people, tools, applications, resources) in my field at the regional, national and international levels. (23)
Other (question 23, 8 choices)	<ul style="list-style-type: none"> ▪ Providing help in identifying possible revenue streams for my/my campus/my organization's CI efforts. (9) ▪ Organizing and maintaining a software licensing/purchasing collaborative for GPN member institutions. (10) ▪ Providing collaborative tools that I can pick up and use (e.g., Adobe Connect, wikis, blogs) (18)

1. Numbers in parentheses after each item refer to priority order in the list of "top 24 items" in Table 7 below. The smaller the number the higher the priority respondents placed on this item.

2. *Networking needs are currently being addressed by the GPN Network Program Committee.*

Table 7. Rank ordering of all services based on responses from Survey 2.

Item	Item Text	Item Score ¹	Item score normalized ²	Rank order ³
17.1	Providing high bandwidth connectivity and related services (e.g. IPv6, VLANs, Internet2 ION service support, etc.) to other universities and other research institutions in the US.	3.7129	0.9282	1
15.1	Provide high performance computing facilities for research, education and training at a regional level	5.2308	0.8718	2
18.2	Organizing workshops to learn about advanced tools for research.	4.0238	0.8048	3
21.1	Maintaining online searchable help for cyberinfrastructure tools.	3.9625	0.7925	4
20.2	Monthly newsletter on technical advances/uses across GPN and nationally	2.3375	0.7792	5
16.1	Provide data storage facilities for research, education and training at a regional level.	4.3956	0.7326	6
20.1	Providing regular email, blog, twitter, etc. communication on the latest developments in cyberinfrastructure..	2.1341	0.7114	7
22.1	Maintaining a searchable database of cyberinfrastructure resources available across my campus or organization.	2.7692	0.6923	8
23.1	Providing help in identifying possible revenue streams for my/my campus/my organization's CI efforts.	5.4384	0.6798	9
23.5	Organizing and maintaining a software licensing/purchasing collaborative for GPN member institutions.	5.4247	0.6781	10
19.1	Maintaining a searchable database of opportunities for collaboration in my area of research.	5.4198	0.6775	11
21.2	Providing a centralized help desk model of support for locating and using regional and national cyberinfrastructure technology in your research.	3.3250	0.6650	12
16.3	Provide a way for me to store and catalogue my datasets	3.9780	0.6630	13
19.2	Providing assistance in identifying potential research collaborators.	5.1358	0.6420	14
18.4	Providing online demonstrations of emerging cyberinfrastructure-related technologies.	3.2069	0.6414	15
18.3	Organizing workshops to learn how to develop and improve campus tools.	3.1279	0.6256	16
19.5	Facilitating grant requests across multiple campuses.	4.9639	0.6205	17
23.8	Providing collaborative tools that I can pick up and use (e.g., Adobe Connect, wikis, blogs)	4.8904	0.6113	18
17.2	Providing high bandwidth connectivity and related services to other universities and other research institutions outside the US.	2.4257	0.6064	19
16.2	Provide a way for me to access and use storage resources at institutions in the region.	3.6374	0.6062	20
18.1	Organizing an annual meeting focusing on using advanced tools across the region.	3.0238	0.6048	21
15.3	Assist me to access and use high performance computing at other institutions in the region	3.5825	0.5971	22
22.4	Maintaining a searchable database of CI expertise (people, tools, applications, resources) in my field at the regional, national and international levels.	2.3846	0.5962	23

19.4	Helping to make contacts with individuals with specific cyberinfrastructure expertise	4.7590	0.5949	24
15.6	Facilitate sharing of existing computational resources across institutions in the region	3.5673	0.5946	25
19.6	Assisting my multi-campus collaboration to function as a virtual organization	4.6914	0.5864	26
19.3	Supporting the creation and maintenance of affinity groups of individuals at GPN member institutions who communicate regularly to discuss developments in their area of expertise.	4.6585	0.5823	27
23.2	Providing help in identifying cost containment/avoidance strategies for my/my campus/my organization's CI efforts.	4.6429	0.5804	28
23.3	Providing assistance in using CI in classroom teaching for graduate classes	4.4583	0.5573	29
21.5	Maintaining a best practice repository on cyberinfrastructure technology	2.7625	0.5525	30
22.2	Maintaining a searchable database of cyberinfrastructure resources available regionally.	2.2051	0.5513	31
22.3	Maintaining a searchable database of cyberinfrastructure resources available nationally.	2.2051	0.5513	32
16.4	Provide a way to share my large data sets or use of a data collection technique within the region	3.2667	0.5444	33
23.4	Providing assistance in using CI in classroom teaching for undergraduate classes.	4.3521	0.5440	34
21.3	Collecting case studies of cyberinfrastructure tool use.	2.6914	0.5383	35
20.3	Regular reports to the membership on national cyberinfrastructure meetings	1.5750	0.5250	36
15.2	Assist me to access and use national supercomputer centers	3.0784	0.5131	37
16.6	Facilitate sharing of existing data storage resources across institutions in the region	3.0222	0.5037	38
17.4	Providing live on-line training in advanced networking (webinars, video presentations, etc.)	2.0000	0.5000	39
23.6	Providing help to promote my campus or organization's cyberinfrastructure work to regional and national organizations.	3.9855	0.4982	40
15.5	Provide live on-line training in high performance computing (webinars, video presentations, etc.)	2.8952	0.4825	41
17.3	Providing live on-site training in advanced networking.	1.9082	0.4770	42
21.4	Maintaining a database of expert reviews of advanced technology.	2.3544	0.4709	43
16.5	Provide a way to to share my large data sets or use of a data collection technique elsewhere in the US or world.	2.7912	0.4652	44
15.4	Provide live on-site training in high performance computing	2.7500	0.4583	45
23.7	Providing help to promote my campus or organization's networking work to regional and national organizations.	3.5441	0.4430	46
19.7	Providing wiki space for groups of collaborators.	3.4000	0.4250	47
19.8	Maintaining mailing lists for topical interest groups of collaborators.	3.3780	0.4223	48
18.5	Attending national CI meetings and providing reports to the membership	1.7349	0.3470	49

1. Item Score within its question $\text{Sum}(W \cdot \text{count})/N$ [excluding "no responses"] **W** is the importance (larger is better)

2. Item score normalized across all items (larger is better)

3. Rank order (smaller is better)

V. GPN Cyberinfrastructure plan

The CI services listed in Table 5 above represent the most pressing needs for CI services within the GPN community. The Committee makes the following recommendations and requests that the Executive Committee approve them. These recommendations and associated action items are intended to support the development and implementation of these services and to form an overall organizational structure and process for responding to current and future regional CI needs.

Recommendation 1. Communicate the results of the CI Advisory Committee's work to the GPN community and seek feedback on the rest of the recommendations.

Action 1: Discuss the results of the CI Advisory committee's work with all GPN membership through a conference call or webcast.

Action 2: Set up a page on the GPN Wiki to receive written feedback.

Action 3: Prioritize categories of service and individual services based on this and future community input.

Recommendation 2: Implement services that meet the top needs as identified through the second CI survey. ***The networking needs are currently being addressed by the GPN Network Program Committee.***

Action 4: Form a *GPN CI Program Committee* to develop service descriptions and service level agreements for each service to be implemented.

Membership will consist of one representative from each GPN connector and affiliate member. Members to be selected by whatever process the connector or affiliate member deems appropriate. Term for the Chair of the CI Program Committee will be one year and the Chair will be selected by the committee membership by nomination and ballot. The Chair will make regular reports to the GPN EC.

Action 5: Develop processes for:

- Seeking community input on service descriptions with a timeframe for comments.
- Resolving funding issues for new services, and working with the GPN budget process to ensure adequate funding to roll out services in a timely manner.
- Rolling out new services.

Action 6: Prepare service descriptions to address the needs on the "top 24" list. All service descriptions to be complete and ready for community feedback by the beginning of Q1 2011, or within four months of start.

Each service description will include a pro forma service level agreement, organization and staffing, assessment metrics and plans, implementation plan, estimates for initial and recurring costs not already included in the GPN budget, and sources of funding if needed. These service descriptions will be vetted and approved by the GPN Executive Committee prior to implementation.

Recommendation 3: Implement an annual service assessment process to measure quality and usage of services.

Action 7: The *CI Program Committee* will combine the individual service assessment plans contained in each service description together with a process for assessing and communicating the quality and usage of each service, and implement these plans.

VI. Next steps

In addition to adopting the recommendations above the committee envisions the following as next steps in developing a response to CI needs:

1. Finalize this report on the basis of responses from the Executive Committee and circulate before the September EC meeting.
2. Approve the final report at the September EC meeting.
3. Develop a charter for a Cybeinfrastructure Program Committee using the Network Program Committee's charter as a model.
4. Discuss and approve the CI Program Committee charter at the September or October EC meeting.
5. Implement and establish membership for the CI Program Committee.
6. Discuss approaches to sustainably fund CI activities (e.g. included in GPN membership fees vs. subscription or per unit fees.) There are many different kinds of CI services each with a potentially different approach to funding included in Table 6 of this report.

Appendix 1. Committee members

Mike Abbiatti, AREON

Gary Allen, University of Missouri System, MU, GPN Executive Council

Guy Almes, Director, Academy for Advanced Telecommunications and Learning Technologies,
Texas A & M (external member)

James Deaton, ONENET & GPN Executive Council

Claude Garelik, SD Board of Regents & GPN Executive Council Chair

Del Johnson, SDSU & GPN Representative Council

Myron Lowe, UMN & GPN Representative Council

Rick McMullen, KU (Chair)

Henry Neeman, OU

James Rice, SDSU, SD EPSCoR Director

Ron Roeber, UNL

Gordon Springer, MU

David Swanson, UNL & Holland Computing Center

Appendix 2: GPN Survey 1

AXIO SURVEY

Cyberinfrastructure Needs Assessment

Survey Description

This is a brief survey to determine your present and future needs related to cyberinfrastructure (CI). One definition for *cyberinfrastructure* is that

Cyberinfrastructure consists of computing systems, data storage systems, advanced instruments and data repositories, visualization environments, and people, all linked together by software and high performance networks to improve research productivity and enable breakthroughs not otherwise possible.

While you may not presently have needs for CI equipment, you may have needs for updated information on CI or training related to the use or development of CI.

Opening Instructions

Please answer the following questions to the best of your ability. Your anonymity will be preserved.

Page 1

Question 1 **** required ****

Please select **all** that apply.

I am a

- | | |
|--|---|
| <input type="checkbox"/> Faculty Member | <input type="checkbox"/> Researcher |
| <input type="checkbox"/> Technical Staff Member | <input type="checkbox"/> Administrator - Research |
| <input type="checkbox"/> Administrator - Technical | <input type="checkbox"/> Administrator - Other |
| <input type="checkbox"/> Graduate Student | <input type="checkbox"/> Postdoctoral Researcher |
| <input type="checkbox"/> Other: | |

Question 2 **** required ****

My principal job title is

Characters Remaining: 50

Question 3 **** required ****

I work for a

- University
- University System
- State Network
- Regional Network
- Other:

Question 4 **** required ****

My principal affiliation is (name of university or other organization):

Characters Remaining: 50

Question 5 *** required ***

My area of expertise is

Characters Remaining: 100

Page 2

Please indicate the importance to you of the following items.

Question 6 *** required ***

High Performance Computing

1 - High Priority | 2 - Medium Priority | 3 - Low Priority

	1	2	3
6.1 Access to campus/organization high computing resources.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6.2 Access to regional or national high performance computing resources.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6.3 Hands-on assistance to use regional or national high performance computing resources.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Question 7

Additional comments regarding **high performance computing**:

Characters Remaining: 200

Question 8 *** required ***

Data Storage

1 - High Priority | 2 - Medium Priority | 3 - Low Priority

	1	2	3
8.1 Access to campus/organization data storage resources.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8.2 Access to regional or national data storage resources.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8.3 Hands-on assistance to use regional or national data storage resources.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8.4 Off-site backup and recovery of critical data.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Question 9

Additional comments regarding **data storage**:

Characters Remaining: 300

Question 10 *** required ***

High performance computing resources within my campus/organization

I am a

- User
- Non-user, but aware of available resources
- Neither

Question 11 *** required ***

High performance computing resources available regionally or nationally

I am a

- User
- Non-user, but aware of available resources
- Neither

Question 12 *** required ***

Shared data storage resources within my campus/organization

I am a

- User
- Non-user, but aware of available resources
- Neither

Page 3

Fill out this page only if you answered:

- *Non-user, but aware ...* OR *User* on question **10**. *I am a* on **page 2** .

Question 13

My campus/organization currently supports **shared high performance computing resources** with a total size of

- 100 or fewer cores
- 101 - 1,000 cores
- 1,001 to 10,000 cores
- over 10,000 cores
- Don't know

Page 4

Question 14

My campus/organization currently supports **shared data storage resources** with a total size of

- 1 to 10 Terabytes
- 11 to 100Terabytes

- 100 Terabytes to 1 Petabyte
- Greater the 1 Petabyte
- Don't know

Page 5

Please indicate the importance to you of the following items.

Question 15 *** required ***

Education and Facilitation

1 - High Priority | 2 - Medium Priority | 3 - Low Priority

	1	2	3
15.1 Live training in emerging CI-related technologies.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
15.2 Web site featuring emerging CI-related technologies.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
15.3 Online demonstrations of emerging CI-related technologies.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
15.4 Regular email communication on the latest developments in CI.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
15.5 Inventory of CI resources available across my campus/organization.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
15.6 Inventory of CI resources available regionally and nationally.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
15.7 Searchable knowledgebase of CI expertise (people, tools, applications, resources) in my field.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
15.8 Affinity group of individuals who communicate regularly to discuss developments in CI.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
15.9 Opportunities for collaboration .	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
15.10 Assistance in CI resource discovery .	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
15.11 Assistance in identifying potential collaborators .	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Question 16 *** required ***

I would like to use CI for **classroom teaching**?

- Yes
- No

Question 17

If you answered "Yes" to the previous question: I have **access to necessary hardware, software and other resources** to accomplish this? (please explain)

- Yes
- No

Further comments about your response:

Question 18

Additional comments regarding **education and/or facilitation**?

Page 6

Please indicate the importance to you of the following items.

Question 19 **** required ****

Promotion and Cost Containment

1 - High Priority | 2 - Medium Priority | 3 - Low Priority

	1	2	3
19.1 Help in promoting my/my campus/my organization's CI work to regional and national organizations.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
19.2 Help in promoting my/my campus/my organization's networking work to regional and national organizations.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
19.3 Help in identifying possible revenue streams for my/my campus/my organization's CI efforts.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
19.4 Help in identifying cost containment/avoidance strategies for my/my campus/my organization's CI efforts.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Question 20

Any additional comments regarding **promotion and/or cost containment**?

Page 7

Additional comments

Question 21

Additional comments regarding **cyberinfrastructure/networking needs and assistance** that may be provided via the GPN consortium.

Question 22

1 - Yes | 2 - No

	1	2
22.1 I would like to be informed of the results of this survey.	<input type="radio"/>	<input type="radio"/>

22.2 I would like to be included in any follow-up surveys.	<input type="radio"/>	<input type="radio"/>
22.3 I would like to be notified of new developments related to cyberinfrastructure.	<input type="radio"/>	<input type="radio"/>



Question 23

If you answered **yes** to any of the previous items, please indicate your email address for follow-up.

Characters Remaining: 50

Closing Message

Thank you for taking the time to complete this needs assessment survey in the area of CI. If you have any questions, please feel free to contact

- Greg Monaco (greg@greatplains.net), GPN Director for Research and CI,
- Rick McMullen (mcmullend@ku.edu), Chair of the **GPN CI Advisory Committee**,
- Claude Garelik (Claude.Garelik@sdbor.edu), Chair of the **GPN Executive Council**, or
- My GPN Campus Representative (see http://collaboration.greatplains.net/wiki/index.php/Portal:Representative_Council)

There are upcoming national cyberinfrastructure workshops, sponsored by NSF, and a report from a High Performance Computing workshop. If you are interested in participating, please visit

- Campus Bridging Technologies Workshop: <http://ndcampusbridging.iu-pti.org/>
- Community Input on the Future of High-Performance Computing from Dec 2009: <http://www.nics.tennessee.edu/workshop>

- End of Survey -

Appendix 3: GPN Survey 2

AXIO SURVEY

Great Plains Network Service Priority Survey

Survey Description

This is a survey to determine a prioritized list of Great Plains Network services.

Opening Instructions

The **Great Plains Network (GPN)** is a **consortium of universities** and related agencies that was originally formed to provide advanced networking (Internet2 connectivity) to your institution and others like it. In the initial phases, GPN provided support to member institutions to, collectively, improve the capacity and capabilities of all.

Recently, the importance of networking to the research enterprise has become even more visible because networking **connects people, research instruments, data, computational and other tools**, known, collectively, as **cyberinfrastructure**. There are initiatives at national and, now, state and local levels to bring attention to the importance of these sophisticated tools and techniques. They are becoming central to research conducted on GPN campuses in the bio/life sciences, physics, genetics, and the humanities. Very often, new faculty who visit our campuses want to know about the quality, availability and support for these tools.

As part of the GPN mission to help our campuses meet the **cyberinfrastructure/high technology** needs of researchers, faculty and others, we are conducting this survey to identify priorities for potential new services that GPN can provide to you and your campus. Your responses will assist a GPN advisory committee to make more informed recommendations.

First, you will be asked some background questions.

Next you will be asked about your priorities for various categories of potential new services.

Finally, you will be asked to prioritize those services in which you have interest.

Page 1

Question 1 **** required ****

Please select **all** that apply.

I am a

- | | |
|--|---|
| <input type="checkbox"/> Faculty Member | <input type="checkbox"/> Researcher |
| <input type="checkbox"/> Technical Staff Member | <input type="checkbox"/> Administrator - Research |
| <input type="checkbox"/> Administrator - Technical | <input type="checkbox"/> Administrator - Other |
| <input type="checkbox"/> Graduate Student | <input type="checkbox"/> Postdoctoral Researcher |
| <input type="checkbox"/> Other: | |

Question 2 **** required ****

My principal job title is

Characters Remaining: 50

Question 3 **** required ****

I work for a

- University

- University System
- State Network
- Regional Network
- Other:

Question 4 *** required ***

My principal affiliation is (name of university or other organization):

Characters Remaining: 50

Question 5

My area of expertise is

Characters Remaining: 100

Page 2

Question 6 *** required ***

Computation (includes GPN assistance using and assistance gaining access to computational resources)

- Important to me
- Important to my campus, but not to me
- Not important

Question 7 *** required ***

Data Storage (includes GPN assistance using and assistance gaining access to shared data storage resources)

- Important to me
- Important to my campus, but not to me
- Not important

Question 8 *** required ***

Networking (includes GPN providing access to advanced networks for research and education)

- Important to me
- Important to my campus, but not to me
- Not important

Question 9 *** required ***

Education & Training (includes GPN annual meetings, workshops and on-line/on-site training provided to you and your campus in technology-related areas)

- Important to me
- Important to my campus, but not to me
- Not important

Question 10 *** required ***

Collaboration (includes opportunities through GPN to identify and participate with others who share similar research and technical interests)

- Important to me

- Important to my campus, but not to me
- Not important

Question 11 *** required ***

Communication (includes regular communication by GPN to inform about national initiatives, proceedings of national meetings, activities of funding sources and other activities that impact research and education)

- Important to me
- Important to my campus, but not to me
- Not important

Question 12 *** required ***

Help (includes GPN centralized assistance that may be available online or live to learn about and access cyberinfrastructure resources)

- Important to me
- Important to my campus, but not to me
- Not important

Question 13 *** required ***

Expertise and Resource Referral (includes compiling and maintaining databases of information on people, tools, applications, resources available across the region)

- Important to me
- Important to my campus, but not to me
- Not important

Question 14 *** required ***

Other (includes cost containment, software licensing collaboration, promotion, letters of support for grant applications)

- Important to me
- Important to my campus, but not to me
- Not important

Page 3

Fill out this page only if you answered:

- *Important to my camp...* OR *Important to me* on question *6. C.. on page 2.*

Question 15

Following are a list of proposed **computation services** that the Great Plains Network could provide to member institutions and faculty and staff at those institutions.

Please rank these services from **most important (1)** to **least important (6)** for GPN, a regional organization with member campuses, to provide.

- Provide high performance computing facilities for research, education and training at a regional level
- Assist me to access and use national supercomputer centers
- Assist me to access and use high performance computing at other institutions in the region
- Provide live on-site training in high performance computing
- Provide live on-line training in high performance computing (webinars, video presentations, etc.)

- Facilitate sharing of existing computational resources across institutions in the region

Page 4

Fill out this page only if you answered:

- *Important to me* OR *Important to my camp...* on question 7. D.. on page 2 .

Question 16

Following are a list of proposed **data storage services** that the Great Plains Network could provide to member institutions and faculty and staff at those institutions.

Please rank these services from **most important (1)** to **least important (6)** for GPN, a regional organization with member campuses, to provide.

- Provide data storage facilities for research, education and training at a regional level.
- Provide a way for me to access and use storage resources at institutions in the region.
- Provide a way for me to store and catalogue my datasets
- Provide a way to share my large data sets or use of a data collection technique within the region
- Provide a way to to share my large data sets or use of a data collection technique elsewhere in the US or world.
- Facilitate sharing of existing data storage resources across institutions in the region

Page 5

Fill out this page only if you answered:

- *Important to my camp...* OR *Important to me* on question 8. N.. on page 2 .

Question 17

Following are a list of proposed **networking services** that the Great Plains Network could provide to member institutions and faculty and staff at those institutions.

Please rank these services from **most important (1)** to **least important (4)** for GPN, a regional organization with member campuses, to provide.

- Providing high bandwidth connectivity and related services (e.g. IPv6, VLANs, Internet2 ION service support, etc.) to other universities and other research institutions in the US.
- Providing high bandwidth connectivity and related services to other universities and other research institutions outside the US.
- Providing live on-site training in advanced networking.
- Providing live on-line training in advanced networking (webinars, video presentations, etc.)

Page 6

Fill out this page only if you answered:

- *Important to my camp...* OR *Important to me* on question 9. E.. on page 2 .

Question 18

Following are a list of proposed **education and training** services that the Great Plains Network could provide to member institutions and faculty and staff at those institutions.

Please rank these services from **most important (1)** to **least important (5)** for GPN, a regional organization with member campuses, to provide.

- Organizing an annual meeting focusing on using advanced tools across the region.
- Organizing workshops to learn about advanced tools for research.
- Organizing workshops to learn how to develop and improve campus tools.
- Providing online demonstrations of emerging cyberinfrastructure-related technologies.
- Attending national CI meetings and providing reports to the membership

Page 7

Fill out this page only if you answered:

- [Important to my camp...](#) OR [Important to me](#) on question [10. C.. on page 2](#) .

Question 19

Following are a list of proposed **collaboration services** that the Great Plains Network could provide to member institutions and faculty and staff at those institutions.

Please rank these services from **most important (1)** to **least important (8)** for GPN, a regional organization with member campuses, to provide.

- Maintaining a searchable database of opportunities for collaboration in my area of research.
- Providing assistance in identifying potential research collaborators.
- Supporting the creation and maintenance of affinity groups of individuals at GPN member institutions who communicate regularly to discuss developments in their area of expertise.
- Helping to make contacts with individuals with specific cyberinfrastructure expertise
- Facilitating grant requests across multiple campuses.
- Assisting my multi-campus collaboration to function as a virtual organization
- Providing wiki space for groups of collaborators.
- Maintaining mailing lists for topical interest groups of collaborators.

Page 8

Fill out this page only if you answered:

- [Important to my camp...](#) OR [Important to me](#) on question [11. C.. on page 2](#) .

Question 20

Following are a list of proposed **communication services** that the Great Plains Network could provide to member institutions and faculty and staff at those institutions.

Please rank these services from **most important (1)** to **least important (3)** for GPN, a regional organization with member campuses, to provide.

- Providing regular email, blog, twitter, etc. communication on the latest developments in cyberinfrastructure..

- Monthly newsletter on technical advances/uses across GPN and nationally
- Regular reports to the membership on national cyberinfrastructure meetings

Page 9

Fill out this page only if you answered:

- *Important to me* OR *Important to my camp...* on question *12. H.. on page 2 .*

Question 21

Following are a list of proposed **help services** that the Great Plains Network could provide to member institutions and faculty and staff at those institutions.

Please rank these services from **most important (1)** to **least important (5)** for GPN, a regional organization with member campuses, to provide.

- Maintaining online searchable help for cyberinfrastructure tools.
- Providing a centralized help desk model of support for locating and using regional and national cyberinfrastructure technology in your research.
- Collecting case studies of cyberinfrastructure tool use.
- Maintaining a database of expert reviews of advanced technology.
- Maintaining a best practice repository on cyberinfrastructure technology

Page 10

Fill out this page only if you answered:

- *Important to me* OR *Important to my camp...* on question *13. E.. on page 2 .*

Question 22

Following are a list of proposed **expertise and resource referral services** that the Great Plains Network could provide to member institutions and faculty and staff at those institutions.

Please rank these services from **most important (1)** to **least important (4)** for GPN, a regional organization with member campuses, to provide.

- Maintaining a searchable database of cyberinfrastructure resources available across my campus or organization.
- Maintaining a searchable database of cyberinfrastructure resources available regionally.
- Maintaining a searchable database of cyberinfrastructure resources available nationally.
- Maintaining a searchable database of CI expertise (people, tools, applications, resources) in my field at the regional, national and international levels.

Page 11

Fill out this page only if you answered:

- *Important to me* OR *Important to my camp...* on question *14. O.. on page 2 .*

Question 23

Following are a list of proposed **other services** that the Great Plains Network could provide to member institutions and faculty and staff at those institutions.

Please rank these services from **most important (1)** to **least important (8)** for GPN, a regional organization with member campuses, to provide.

- Providing help in identifying possible revenue streams for my/my campus/my organization's CI efforts.
- Providing help in identifying cost containment/avoidance strategies for my/my campus/my organization's CI efforts.
- Providing assistance in using CI in classroom teaching for graduate classes
- Providing assistance in using CI in classroom teaching for undergraduate classes.
- Organizing and maintaining a software licensing/purchasing collaborative for GPN member institutions.
- Providing help to promote my campus or organization's cyberinfrastructure work to regional and national organizations.
- Providing help to promote my campus or organization's networking work to regional and national organizations.
- Providing collaborative tools that I can pick up and use (e.g., Adobe Connect, wikis, blogs)

Page 12

Question 24

In your opinion, who should GPN regard as the principle customer(s) at your campus/institution (please select all that apply):

- Graduate Students
- Faculty
- Technical Staff (e.g., IT, Networking)
- Director of Research Computing
- Director of Networking
- Chief Information Officer
- VP for Research
- Provost
- President/Chancellor/CEO
- Other: _____

Further comments about your response:

Question 25

Please list any additional services/service areas that you feel GPN could offer.

Characters Remaining: 2000

Question 26

If you would like to learn the results of this survey, please leave your email address.

Characters Remaining: 50

Closing Message

Thank you for taking the time to complete this survey. If you have any questions, please do not hesitate to contact either Greg Monaco (greg@greatplains.net) or Rick McMullen (mcmullend@ku.edu).

- End of Survey -

Appendix 4: GPN Survey 1 Results

AXIO SURVEY

SURVEY REPORT

Summary

Survey Name:

Cyberinfrastructure Needs Assessment

Offering Name:

GPN Consortium Needs Assessment Survey

Offering Date:

3/4/10 to 3/31/10

Statistics

A total of **505** people started this survey.

410 people completed it.

95 people quit before completing it.

Number of people who left the survey without completing it per page number:

- Page 1: **114**
- Page 2: **44**
- Page 3: **1**
- Page 4: **1**
- Page 5: **34**
- Page 6: **9**
- Page 7: **6**







Average completion times:

- Average Time To Complete Survey: **13 minutes 52 seconds.**
- Average Time Spent Before Quitting: **8 minutes 43 seconds.**

Page 1

Question 1







I am a

Faculty Member		324 (64.16%)
Researcher		67 (13.27%)
Technical Staff Member		38 (7.52%)
Administrator - Research		21 (4.16%)
Administrator - Technical		26 (5.15%)
Administrator - Other		21 (4.16%)

-
-
-
-
-
-

Question 3

I work for a

University		449 (88.91%)
University System		38 (7.52%)
State Network		3 (0.59%)
Regional Network		2 (0.4%)
Other:		13 (2.57%)
N/R		0 (0%)

Other Text:

- see above
- University Extension
- none
- Fed Government
- business
- Hospital
- Retired
- independently funded
- Tribal College
- SDSTA
- Non Profit Organization
- Storm Prediction Center and University
- FFRDC

Question 4

My principal affiliation is (name of university or other organization):

- University of Missouri--St. Louis
- University of Oklahoma
- University of Missouri
- University of Missouri
- University of Missouri
- University of MO - Columbia
- Univ of Mo
- University of Missouri
- University of Missouri - Columbia
- University of Missouri, Columbia
- University of Missouri
- University of Missouri-Columbia
- University of Missouri
- University of Missouri - Columbia
- University of Missouri-Columbia
- University of Missouri
- University of Missouri
- University of Missouri

- University of Missouri Extension
- University of Missouri
- Pierre Laclède Honors College (UM-St. Louis)
- University of Missouri - St. Louis
- University of Missouri
- University of Missouri - Columbia
- University of Missouri
- University of Missouri
- UMSL
- University of Missouri at Columbia
- University of Missouri
- University of Missouri
- Univ. of Missouri-Columbia
- University of Missouri Extension
- University of Missouri
- MU
- University of Missouri
- UMKC
- University of Missouri
- MU
- UNL
- University of Nebraska-Lincoln
- University of Arkansas
- mu
- South Dakota State University
- University of Missouri, Columbia
- University of Missouri
- UAMS
- University of Missouri, St Louis
- University of Missouri
- University of Missouri-St. Louis
- South Dakota State University
- University of Missouri Extension
- University of Missouri
- University of Missouri
- University of Missouri-Kansas City
- University of Oklahoma
- University of Missouri-Columbia
- Business Development Program
- University of Nebraska Lincoln
- UNL
- University of Missouri-St. Louis
- South Dakota State University
- University of Missouri-Columbia
- South Dakota State University
- University Missouri Hospitals and Clinics
- University of Missouri
- University of Missouri - Columbia
- University of Oklahoma
- University of Missouri-St. Louis
- University of Oklahoma
- University of Missouri - STL
- UMKC
- University of Missouri
- University of Nebraska
- Univ. of MO St. Louis
- Oklahoma City University
- University of Missouri - St. Louis
- University of Missouri St Louis
- Univerisity of Missouri Extension
- University of Missouri

- UMKC
- UM - St. Louis
- University of Missouri
- University of Missouri-Columbia
- University of Missouri Health System
- University of Missouri
- University of Missouri
- University of Missouri
- MU Extension
- University of Missouri
- University of Missouri
- University of Missouri
- University of Missouri
- University of Missouri
- University of Missouri Extension
- University of Missouri
- University of Missouri -- Columbia
- University of Missouri, Columbia
- Univ of Missouri
- University of Arkansas, Fayetteville
- University of Oklahoma
- University of Nebraska at Omaha
- Univ of Missouri
- MU - Columbia
- University of Missouri--Columbia
- University of MO
- Univ of Missouri College of Veterinary Medicine
- University of Missouri
- University of Missouri Kansas City
- University of Missouri
- University of Missouri-Columbia
- University of Missouri - Columbia
- UNL
- University of Oklahoma
- USDA-ARS
- University of Missouri-Columbia
- University of Arkansas
- University of Nebraska - Lincoln
- UMKC
- MU
- UMC
- University of Missouri-Columbia
- University of Missouri
- University of Missouri-Columbia
- University of Missouri-St. Louis
- university of missouri st. louis
- University of Missouri: Columbia
- University of Missouri
- Univ of Missouri
- University of Nebraska-Lincoln
- Oklahoma University Health Sciences Center
- University of Missouri-St. Louis
- UMKC
- University of Missouri-Kansas City
- University of Missouri - St. Louis
- University of Missouri - St. Louis
- University of Missouri - St. Louis
- University of Missouri-St. Louis
- University of Missouri
- University of Missouri-Kansas City
- UMKC

- The University of Oklahoma
- University of Nebraska-Lincoln
- SDSU
- Creighton University
- UMSL
- University of Missouri-St. Louis
- employee
- University of Missouri Extension
- SDSU
- University of Missouri-Columbia
- Iowa State University
- University of Missouri St Louis
- Arkansas State University
- University of Missouri-St. Louis
- University of Missouri-Kansas City
- University of Missouri Columbia
- University of Missouri
- University of Missouri
- Univ. of Missouri
- University of Missouri
- University of Missouri
- University of Missouri-Columbia
- University of Missouri
- University of Missouri
- University of Missouri - Columbia
- MU
- University of Missouri
- MU
- University of Missouri
- University of Missouri
- University of Missouri
- University of Missouri-Saint Louis
- MU
- University of Missouri
- UMC- CVM VMTH
- university of missouri
- University of Missouri Columbia
- University of Missouri
- University of Missouri Health Care
- University of Missouri
- University of Missouri
- University of Missouri
- university of missouri
- South Dakota State University
- University of Missouri
- University of Missouri-Columbia
- University of Missouri
- University of Missouri Columbia
- university of missouri
- University of Missouri - St. Louis
- University of Missouri
- University of Missouri-Columbia
- University of Missouri
- MU
- University of Missouri
- University of Missouri Extension
- university of missouri
- university of missouri
- University of Missouri - St. Louis
- University of Missouri-Columbia
- University of Oklahoma

- University of Tulsa
- University of Nebraska–Lincoln
- University of Oklahoma
- UM St. Louis Public Policy Research Center
- University of Missouri-St. Louis
- University of Missouri-St. Louis
- UMKC
- University of Missouri-St. Louis
- University of Missouri
- University of Nebraska-Lincoln
- SDSU
- University of Missouri
- University of Nebraska-Lincoln
- university of missouri libraries
- University of Missouri-St. Louis
- The University of Oklahoma
- University of Oklahoma
- university of oklahoma
- University of Oklahoma
- School of Social Work UM-St. Louis
- University of Missouri
- University of missouri
- University of Missouri at Columbia
- UMKC
- asdasdasd
- University of Tulsa
- University of Oklahoma
- University of Nebraska
- University of Missouri - Columbia
- University of Missouri - St. Louis
- UMKC
- University of Oklahoma
- University of Missouri – St. Louis
- UMKC
- University of Nebraska-Lincoln
- Widener University
- University of Missouri
- Harvard Medical School
- U. Oklahoma
- University of oklahoma
- University of Missouri
- University of Nebraska-Lincoln
- University of Missouri
- U. of Missouri
- u of missouri at st. louis
- University of Nebraska Lincoln
- University of MO-St. Louis
- University of Missouri - St. Louis
- Univesrity of Oklahoma
- University of Missouri
- University of Nebraska – Lincoln
- south dakota State University
- University of Missouri-St. Louis
- University of Nebraska at Lincoln
- University of Nebraska - Lincoln
- University of Missouri-Columbia
- University of Missouri-Columbia
- University of Missouri
- University of Missouri
- University of Missouri-Columbia
- University of Missouri - St Louis

- University of Missouri-St. Louis
- SDSU
- University of Missouri
- University of Missouri-Columbia
- University of Missouri
- University of Missouri
- University of Missouri
- University of Missouri
- University of Nebraska-Lincoln
- University of Missouri
- University of Missouri
- University of Missouri
- University of Missouri
- University of Missouri
- University of Missouri (Columbia)
- University of Missouri Columbia
- University of Missouri - Columbia
- University of Missouri-Columbia
- univ of missouri-columbia
- University of Missouri
- Unviersity of Missouri
- University of Missouri
- UMC School of Medicine
- University of Missouri
- U Missouri--Columbia
- University of Missouri
- University of Missouri, Columbia
- MU-Columbia
- University of Missouri: Columbia
- University of Missouri
- Great Plains Network
- University of Missouri, Columbia
- University of Missouri, Columbia
- University of Missouri
- University of Missouri--Columbia
- University of Missouri Extension
- University of Missouri
- university of missouri
- U, of Missouri - Columbia
- University of Missouri
- University of Missouri
- University of Missouri
- university of missouri-columbia
- University of Missouri
- University of Missouri - Columbia
- Niversity of Missouri - Columbia
- University of Missouri
- University of Missouri
- University of Missouri
- University of Missouri-Columbia
- University of Missouri
- U. of Missouri-Columbia
- University of Missouri (Columbia)
- University of Missouri.edu
- University of Missouri
- University of Missouri
- MU Extension
- university of missouri
- University of Missouri - Columbia
- Unviersity of Missouri - Columbia
- University of Missouri Extension

- University of Missouri
- University of Missouri
- University of Missouri
- Universty of Missouri
- University of Missouri
- University of Missouri Columbia
- SDSU
- University of Missouri
- Iowa State University
- U of MO Columbia
- University of Missouri
- MU
- University of Missouri-Columbia
- University of Missouri
- SDSU
- university of Nebraska Lincoln
- University of Missouri Extension
- University of Missouri
- graduate student
- South Dakota State University
- University of Missouri
- SDSU
- Oklahoma University
- University of Missouri
- university of missouri-st. louis
- University of Nebraska Lincoln
- University of Missouri
- University of Nebraska at Omaha
- South Dakota State University
- South Daktoa State University
- University of Missouri
- University of Oklahoma
- University of Missouri
- University of Nebraska-Lincoln
- umsl
- University of Missouri
- University of Oklahoma
- University of Tulsa
- University of Oklahoma Health Sciences Center
- University of Missouri-St. Louis
- University of Missouri - Kansas Ctiy
- University of Nebraska - Lincoln
- University of Nebraska Lincoln
- UNIVERSITY OF MISSOURI SCHOOL OF MEDICINE
- University of Missouri
- USD
- South Dakota State University
- unl
- University of Oklahoma
- UMKC
- University of Oklahoma
- South Dakota State University
- East Central University
- Great Plains Network
- Kansas State University
- University of Nebraska-Lincoln
- University of Oklahoma
- Oklahoma State University
- UMSL
- University of Missouri
- University of Missouri

- University of Kansas
- The University of South Dakota
- UNIVERSITY OF OKLAHOMA
- University of Oklahoma
- University of Kansas Medical Center
- SDSMT
- University of Oklahoma
- University of Missouri
- Oklahoma State University
- University of Oklahoma
- Oklahoma State University
- University of Oklahoma
- south dakota state university
- UMKC
- Kansas State University
- University of Oklahoma
- South Dakota School of Mines
- S.D. School of Mines and Technology
- UMSL
- University of Kansas
- University of Nebraska-Lincoln
- University of Arkansas at Little Rock
- OU
- Northwestern University
- University of Tulas
- Sisseton Wahpeton College
- oklahoma state university
- SDSTA
- KU
- Shodor Education Foundation
- CIMMS
- University of Kansas
- University of Kansas
- University of Kansas
- University of Kansas
- BHSU
- University of Kansas
- rather not say
- UALR
- University of Tulsa
- oklahoma state university
- UM-St. Louis
- KanREN
- Storm Prediction Center/University of Oklahoma
- University of Missouri
- University of Oklahoma
- Department of Physics and Astronomy, UNL
- South Dakota School of Mines and Technology
- SDSM&T
- Oklahoma State University
- Oklahoma State University
- University of Missouri
- University of Nebraska-Lincoln
- Wichita State University
- CIMMS School of Meteorology at OU
- MITRE and UNO
- University of Oklahoma
- University of Oklahoma
- South Dakota School of Mines and Technology
- MIMH - UM-Columbia
- Oklahoma State University

- Oklahoma State University
- Oklahoma State University
- University of Nebraska at Omaha
- South Dakota School of Mines & Technology
- University of Kansas
- University of Missouri Columbia
- University of Kansas, Lawrence
- Wichita State University
- University of Kansas
- University of nebraska-Lincoln
- aa
- University of Nebraska-Lincoln
- The University of Kansas
- K-State
- University of Kansas
- Kansas State University
- University of Kansas
- Kansas State
- OU /CIMMS
- University of Oklahoma
- University of Tulsa
- The University of Oklahoma
- Northwestern Oklahoma State University
- Washburn University
- The University of Oklahoma
- University of Nebraska-Lincoln
- SDSMT
- University of Kansas
- University of Kansas
- ualr
- UNL
- Okahoma State University
- University of Nebraska-Lincoln
- University of Oklahoma
- Wichita State University
- Kansas State University
- University of Missouri-Columbia
- University of Nebraska-Lincoln
- University of Oklahoma
- University of Nebraska Omaha
- SD School of Mines and Technology
- University of Central Oklahoma
- Oklahoma State University
- South Dakota School of Mines and Technology
- University of Nebraska
- University of Oklahoma
- Holland Computing Center
- University of Nebraska-Lincoln
- Oklahoma State University
- Wichita State University
- University of Kansas
- a
- University of Kansas
- University of Missouri Extension
- University of Kansas
- KU
- Wcihtia State University
- University of Oklahoma
- University of Kansas, CEBC
- University of Kansas

Question 5

My area of expertise is

- Mathematics
- Computational Chemistry, Physical Chemistry
- Neuroscience
- High performance computing and networking, application systems
- Adult Health
- Nursing
- Biochemistry
- Law
- Online learning; Engineering education
- Bioinformatic
- Geomicrobiology
- Mathematics
- archaeoastronomy
- languages, literatures, oral traditions, digital and internet research
- General and organic chemistry and their associated labs.
- Medical Education
- health science library outreach
- Law and social work research
- Mechanical & Aerospace Engineering
- Business Development-Adult Ed
- Genetic Engineering
- literature expository and creative writing
- Psychiatric Nursing
- education
- Musicology, Historical
- Family process, adolescent development, social competence
- Systems Biology
- Continuing education administration
- Biological and medical research statistical support, especially genomic and proteomic support.
- Economics of Education
- Biomaterials and surface science
- see above
- Agronomy
- English
- Chemistry
- Continuing Education
- health research
- Clinical Psychology
- Software support/web
- climate/crop modeling
- Acoustics
- Administration of information technology projects
- genetics and reproductive management of swine
- Chemistry
- Microeconomics
- Biochemistry
- Clinical and Healthcare informatics, NLP of medical text and Image understanding
- Communication - health and interpersonal. Research methods/statistics
- Science education
- Libraries
- simulation-based engineering, virtual reality, CFD, scientific visualization.
- Human Development and Family Studies
- Nineteenth-century British Literature
- mathematics
- biophysics, structural biology, protein structure, x-ray crystallography
- Thunderstorm simulation
- Computational molecular dynamics
- helping small businesses get government contracts

- Computational Mechanics
- math
- Reference librarianship, library instruction, online tutorial making with Flash/Javascript
- Satellite image calibration
- chemistry education
- Manage/Install/Monitor Ent. Linux., Large FC storage, Networking, Scientific Programming, Webmaster
- Workers compensation
- molecular genetics and genomics
- Occupational Therapy
- Numerical Modeling of Atmospheric Flows - with expertise in vortical flows
- Cost Accounting
- meteorology
- Accounting
- Mathematics (set theory)
- immunology
- Computer Science
- nursing
- C, Java
- Technology Infrastructure, Network, Instructional Technologies, Desktop Hardware, Security
- Mass Communication
- Nutrition
- agronomy, genetics, math
- Cell Biology; also database-driven, Coldfusion-supported web services designer
- Instruction/Communication
- Database searching
- Pediatrics
- Humanities librarianship
- gerontology, retirement
- Business and Economic Development
- Youth Development
- Child Development
- Youth Development
- Radiography / Radiologic Sciences
- Molecular Microbiology & Immunology (Bacteriology specialized)
- Asian religions
- Agronomy and Horticulture
- Energy
- education
- Hydrogic Science
- Teaching
- Systems Analysis
- meteorological data processing
- First-principles calculation of nanomaterials
- Transfusion Medicine
- Agricultural
- (1) native plants' ecosystems and the native ecosystems' characteristics and environmental character
- Human environmental science
- Diagnostic Veterinary Microbiology, Mycology, Antimicrobial Susceptibility testing, Anaerobic bact.
- Business - marketing
- grants administration
- Tax
- Mass spectrometry, proteomics, surface chemistry
- Early American History and Women's History
- Civil Engineering FEM
- High Energy Physics and Grid Computing
- Environmental soil microbiology, soil quality
- Accounting
- High Performance Computing
- Atomic, Molecular, and Optical Physics

- gerontology
- geophysics
- public policy
- English Literature
- Agricultural business
- Biochemistry
- Motor Development
- english
- Special Education
- English Literature
- Electronic medical record usability and visual display of quantitative info
- Physics
- Microbiology, Microbial genomics, functional genomics, transcriptomics, bioinformatics, phylogeny
- Economics, social policy, health, children with special health care needs
- Nursing maternal, fetal, infant morbidity and mortality
- Medical Education, Health Disparities, Clinical Epidemiology/Health and Biomedical Informatics
- chemistry
- Educational Technology
- librarianship information (content) services
- Education
- Social Work
- speechwriting, advancement writing, research, press releases, news and feature writing.
- French & Medieval language & literature
- Regional modeling/climate modeling
- Discrete mathematics: graph theory, graph algorithms, and complexity theory.
- engineering outreach services
- Molecular dynamics simulation of polypeptide structures Quantum chemical calculations
- libraries
- Academic Administration
- biology, computer networks
- Nutrition and Health Education
- Genomics
- Nutrition
- high performance computing
- Epidemiology
- Networking, Video Conference, Telecommunications, Project Management.
- American Colonial History; 17th-century English History.
- Grants administration and submission
- Nuclear Engineering
- 4-H Youth Development, Volunteer Development, and Animal Science
- Music Composition and Music Theory
- bioinformatics
- Geology (experimental petrology and volcanology)
- Human Resources
- Theoretical Chemistry
- Languages
- Folklore & Medieval Literature
- Language
- forestry
- Photojournalism, Photography, Picture Editing
- education
- Biological Sciences
- Quantitative Psychology
- Nutrition, obesity and adipose tissue metabolism
- Art History
- medical imaging
- human services information systems, cybernetics, soft systems methodology, system dynamics modeling
- Veterinary Medicine
- rural sociology--diffusion of technology (especially broadband) and community/rural development
- Youth Development

- Biochemistry
- Anesthesia Electronic Medical Records
- Clinical Psychology
- Life Sciences
- Electrical engineering
- Distance Education
- Chemistry
- Sociology of Health
- Logic
- medical informatics, learning technology
- Agronomy extension
- spatial analysis, public policy, public health informatics
- Acquisitions & collection development
- computer gaming for education and community computer/connectivity access for youth
- Genomics
- Community and International Development
- Bioethics
- Curriculum
- Family Financial Education
- analytical biochemistry
- family studies; marriage and health
- Criminology
- Theoretical chemical physics
- Simulation of heat transfer in nanoscale
- Computational Biology
- VMs
- Molecular dynamic simulation of liquids.
- local public policy
- teaching writing
- Accounting
- Music, Women in the Arts, Composition, Performance on organ and harpsichord
- reporting database development
- Hyperspectral and Thermal Airborne Remote Sensing
- using remote sensing and other geospatial technologies to study ecological patterns & processes
- criminology, sociology
- Art History
- Roadside Safety Engineering
- archival processing
- writing/english
- spins and charges in semiconductor nanostructures, programming
- database
- meteorology
- Artificial Intelligence
- social work practice, public child welfare
- Social work
- human development and family studies
- Rehabilitation and Neuropsychology
- Chemistry
- asdasdasdA
- Computational Neuroscience and Distributed Problem Solving
- Wireless communications, signal processing, compressed sensing
- Physics
- Computer Design
- SEC reporting and capital markets
- music therapy
- Information Technology, computer networking.
- Computer Science
- Philosophy
- Statistical Ecology
- Magnetic semiconductor Computational physics
- International Agricultural Development / Cultural Change / Immigration

- bioinformatics
- bioinformatics
- MD simulation
- Mathematics Education
- Bioinformatics, computational biology, alternative splicing, massively parallel compute pipelines
- Agribusiness, Family Enterprise, Agricultural Economics, Cooperatives
- family studies
- Molecular genetics - plant/microbe interactions
- Application Development.
- Labor economics
- Compiler Construction; System Administration; Cryptology
- biophysical chemistry
- philosophy of mind and psychology, general philosophy of science, metaphysics
- Web dev and student involvement via social media (e.g. Facebook)
- computational multibody dynamics, computational molecular dynamics, virtual prototyping on HPC
- Economics
- Physical chemistry
- Software engineering
- Social Work
- Anesthesiology
- Sociology
- Cardiovascular Research
- agricultural economics (agribusiness)
- Logistics, Supply Chain management, Business
- women's and gender studies; English
- computational sciences
- Urology
- Continuing education
- Pulmonary & Critical Care Medicine
- Teaching English to Speakers of Other Languages (TESOL) Migrant Education
- Social-Personality and Evolutionary Psychology
- veterinary clinical pathology
- High performance computing
- Paleoanthropology and anatomy
- Photojournalism
- Sociology
- anthropology
- History and Religion in Europe, 1300-1700
- biomedical informatics and pathology
- Biochemistry
- Clinical Medicine , Practice Administration.
- orthopaedic surgery
- Language Contact
- statistical consulting
- Urogynecology and Pelvic Reconstructive Surgery
- Psychiatry/Child & Adolescent Psychiatry educatio & training
- Hematology/Oncology
- Otolaryngology
- bioinformatics, statistics, machine learning, data mining, probability
- Medicine
- Human Andrology
- Plant Pathology
- Perioperative Medicine
- Cattle nutrition, grazing management, fescue toxicosis
- Computer Science
- Linguistics, language documentation, Mayan languages
- History and history of science
- Handling LP Gas Emergencies and Industrial Emergency Training.
- (1) native plant ecosystems, their characteristics and environmental usefulness (2) economics
- Nutrition and Health Education
- Mechanical Engineering, Cell Preservation Technology

- cognitive and behavioral neurology and cognitive neuroscience
- Forestry/Atmospheric science
- fungal ecology
- Women's Healthcare
- Neuropsychology
- hematology/oncology
- health professions
- Biological Sciences
- Developmental Pediatrics
- Mechanical Engineering
- health services research
- Economics
- neuroscience and evolutionary biology
- Nutrition
- business, economics
- respiratory therapy, adult learning
- Instructional Design and Technology
- Youth Development - volunteer development; program planning and evaluation; Science, programing
- humanities
- business development
- vascular biology
- Analyses of educational data
- Library Science
- Vocational technical programs
- Electrical Engineering
- Accounting
- nursing
- Research
- Diagnostic Medical Sonography, Anatomy
- Web usability; cataloging, libraries, teaching online
- Remote sensing, processing "big data" satellite remotely sensed data sets
- Community Resource Development
- Networks
- Medical Pharmacology
- clinical family medicine
- Research Methodology
- Regional Economics: local economic analysis, state and local public finance
- Operations Management, Systems Management, Food Safety
- Computation, materials science and engineering
- electronic structural calculation, classical and ab-initio MD simulations
- Youth Development
- Fine Art
- bioinformatics, protein structures, functional annotation
- High Performance Computing administration
- Ophthalmology
- Parallel processing, networking, algorithms
- Electrical and Computer Engineering
- Theatrical Costume Design
- history
- HPC
- nutrition
- Bioinformatics/Computer Science
- My areas of interest are: Linux, Linux Clusters, High Performance Computing
- Geographic Information Science, Landscape Ecology, Spatial Epidemiology
- Internal Medicine Electronic Medical Record: informatics associated with that and other clinical
- Aerospace engineering, computational research
- Nutrition, health, physical activity
- Constraint Processing
- word
- Southwest Columbia

- meteorology
- Bioinformatics
- RNA structural biology
- Music
- human resources, organizational behavior
- Embedded systems, networking, wireless sensor networks
- Networks
- PEDIATRIC RADIOLOGY
- Science
- Computer Science
- Videoconferencing and A/V equipment, plus a good computer knowledge base.
- climate modeling
- Computational Chemistry, Physical Chemistry
- Voice and data networks.
- Astronomy/Cosmology
- Domain Decomposition Methods, Parallel Algorithms for Numerical Differential Equations
- Physical Chemistry; Thermodynamics, High Temperature Chemistry; Materials Science
- Systems management, newsletters, and wikis
- Distributed computing, sensor networks, high-performance computing.
- CFD
- Environmental Science
- nuclear magnetic resonance, physical chemistry
- Foreign Language Education
- Yeast molecular biology
- Research administration
- Web services
- HPC administration
- reservoir production history matching
- Computational Chemistry, Physical Chemistry
- enterprise systems
- atmospheric sciences
- Computational Mechanics
- Health Economics
- Condensed Matter Physics
- Chemical Engineering
- Parallel computing and Load balance
- Ecological modeling
- Mathematics; Computational Science
- Networks, Servers & Storage
- Atomic physics theory
- Biochemistry and Molecular Biology
- Atmospheric Sciences
- chemical processing, polymer technology, chemical characterization, nanomechanics, nanomaterials
- Anthropology
- Economics
- Information Technology
- Bioinformatics
- Computation
- Artificial Intelligence
- Math
- IT, grant management
- finance
- Web Development, DBA, Server and Application Installation, Data Storage.
- German; Applied Linguistics
- parallel programming
- Meteorology
- structural biology and mechanistic enzymology
- Experimental high energy physics
- experimental particle physics
- Public Administration

- Life Science
- Unix/Linux, Network, Storage, HPC and integration in a research environment.
- Technical architectural design.
- Bioinformatics
- Networking and Security
- physics
- Cluster / State Networking
- Ensemble forecasting/verification
- Infrastructure.
- climate
- Single and Double Ionization, Harmonics Generation processes in Atomic and Molecular Physics.
- Molecular modeling of protein-surface interactions, chemical engineering
- Met and Mat Eng
- Molecular Biology
- Biology
- Cancer Epidemiology; Public Health Surveillance & Research
- Roadside Safety Engineering
- Computational Fluid Dynamics
- climate
- Systems engineering and analysis
- Genomics, Biochemistry, Molecular Biology
- Meteorology, numerical weather prediction.
- Molecular Modeling and Simulation, Chemical Engineering, Reaction Engineering, Thermodynamics
- Motivational Interviewing, Substance Abuse Prevention
- Mammalian systematics
- Botany/Bioinformatics
- Biological Physics
- Condensed Matter Physics
- Chemistry
- Atmospheric Science
- community development, extension, organizational development, education leadership
- Physics, Cosmology
- System Administration
- Chemistry
- text analysis & datamining
- aa
- Computational Nanoscience and Chemistry
- Applied Statistical Mechanics
- Reference, Government Documents, Serials
- Statistics
- System administration for Windows, Mac, and Linux. Apache webserver for Linux with LAMP.
- Biology, Ecology
- GIS, Spatial Data Infrastructure, web mapping
- Theoretical Chemistry
- Regional climate modeling
- Computational chemistry
- Computer Science and Bioinformatics
- communications signal processing
- Information Technology
- Physics, astronomy
- Experimental Atomic Physics, Computational Physics
- Organic chemistry
- Computer Science & Robotics
- Formal methods, security, system-level design
- Psychology and Neuroscience
- programming
- computational mechanics
- Genomics, Bioinformatics, Genetics
- real-time systems, cluster and high performance computing
- Numerical weather prediction and data assimilation

- Aircraft Icing Analysis, CFD, Fortran programming
- simulation modeling of green plants, especially their genetics and physiology
- Veterinary Pathology and Microbiology
- bioinformatics, computational biology, alternative splicing, massively parallel research pipelines
- Computer Science - Distributed processing
- computer programming and statistics
- Project Management and Systems Engineering
- Fluid Dynamics including Microfluidics
- Molecular Genetics
- Condensed Matter Physics
- Grid Applications System Administration Visualization
- Quantitative Psychology (statistics)
- MD simulation and MapReduce
- transportation safety
- Numerical Analysis and Scientific Computation
- Statistics/psychometrics
- Astrophysics Geophysics Paleontology
- a
- Experimental particle physics
- Small Business Assistance
- Technical communications, writing, science fiction
- Technology
- FEA
- Meteorology
- Computer and networking infrastructure
- Data

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Question 6

High Performance Computing

6.1 Access to campus/organization high computing resources.

High Priority		285 (56.44%)
Medium Priority		103 (20.4%)
Low Priority		73 (14.46%)
N/R		44 (8.71%)

6.2 Access to regional or national high performance computing resources.

High Priority		127 (25.15%)
Medium Priority		189 (37.43%)
Low Priority		145 (28.71%)
N/R		44 (8.71%)

6.3 Hands-on assistance to use regional or national high performance computing resources.

High Priority		112
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		(22.18%)
Medium Priority		189 (37.43%)
Low Priority		160 (31.68%)
N/R		44 (8.71%)

Question 7

Additional comments regarding **high performance computing**:

- access/connection to regional or national hpc feels very daunting. I would appreciate an on campus resource person who could assist in that area
- availability is king
- without high performance computing many of our research achievement cannot be done. So it is extremely important for the research community.
- NOt sure what you mean by high performance (?)
- It is EXTREMELY important for me to have access to library databases (i.e., JSTOR, Academic Search Premier, etc.). But I doubt such databases fall under the rubric "high performance computing".
- I have other professors in my dept. who are direct users of HP computing.
- I am also a TeraGrid Campus Champion
- Right now data mining is the primary probalem. Gaining enough epidemiology data to use a super-computer seems unlikely.
- University-maintained cloud systems are highly desirable to foster regional cooperation.
- I am at the U of O Health Sciences Center which does not have any high performance computing resources. I have been using the HPC resources on the Norman campus for 3 years.
- Would very much like to use this resource but would need help
- Need access to high speed INTERNATIONAL connectivity.
- We would like to have different and newer software installed on high performance computers rather than what we have now with hands on assistance
- Im not sure I know what is meant by high performance computing.
- No comment.
- I teach undergraduate parallel computing and presently use a departmental linux cluster as well as a univeristy linux cluster. Trying to build relationships with national laboratories ORNL & ANL.
- If I lacked access to campus high computing resources, then my need for access to regional/national resources would be high and my need for hands-on assistance to those resources would be medium.
- I don't really know what high performance computing is. You should always include don't know as an answer. It might tell you alot.
- would like more training on parallel programming
- Restricted local resources makes access to regional and national resources more important at SDSU.
- I have a postdoc position since February 2010. My codes will need some processors and a lot of memory (more than 221 GB sometimes because I manage matrix which have a very big size.
- In addition to resources it is extremely important to provide collaboration tools and environments to support research efforts.
- I think computing ought to be distributed. My own cluster has a far lower downtime than any of the campus computers.
- I like having local resources available
- There will be a huge onslaught of genomic data from new sequencing technologies that will bury most high/super-computing Centers in data to analyze and store
- I may not need hands-on assistance, but, as someone outside of CS, some "getting started" tutorials would be helpful.
- I do not even know what this is.....
- We run our own cluster, but also uses Teragrid resources. We would be able to use them better if we had access to more network bandwidth.
- We have two clusters and participated in a campus wide grid test which exposed a number of problems mainly relating to bandwidth and privacy.

- I use resources located at Fermilab, CERN and Lincoln, NE, so a good high-bandwidth connection is needed
- I am not quite sure what "high" performance computing entails, but we use large image files and other software to help develop the necessary digital imaging skills in our students.
- Counsel on computing needs of a language documentation project centered in southern Mexico and maintenance of those facilities
- HPC has become a major resource for research projects.
- I am looking for a high performance computing supporting multi-matlab and/or parallel computing in matlab/mathematica computing over mutlinodes
- Good facilities and support persons let us concentrate on the science and engineering
- Library linkages to online resources and journals can now be quite time consuming waiting for the uplinks.
- I do not have a personal need to access these resources. However, the nature of my job requires that I support access to these resources, so I like to have a basic understanding of them.
- I do not do much of this currently but have in the past.
- I have used the HP computers here at UNL in the past, but found a major bottleneck moving data to and from the system
- Need better access to high aggregate RAM cluster
- I'm not sure what "regional or national high performance computing resources" means. If it's library resources (journal articles, etc.) then it's all high priority.
- I don't know what you're talking about. How does high performance computing differ from being on the internet? Are you talking about 2nd life? or storing volunteer's social security numbers?
- Improved connectivity
- Statistical and data management software in combination with high performance computing is an important consideration in our disciplines.
- What do you mean by "high performance computing?" If you mean access to a mainframe, not so much. But if you mean high speed internet, that would be a big priority.
- My bioinformatics collaborators - critical to my research - need access to HPC on campus.
- Computer simulation modeling of roadside barrier systems is a significant aspect of my research. High-performance computing allows more efficient evaluation of roadside systems in impact conditions.
- I am responsible for maintaining database security for > 1 million records that contain PHI. We receive and transmit PHI data instate and out-of-state, conduct linkages and analyze large datasets.
- To my knowledge, our data sets do not currently require HPC. I am aware of projects within the University of Kansas that currently have small scale HPC on their own, but which could benefit from HPC.
- In addition to high-performance, it would be equally helpful to have high-throughput resources (e.g. Condor network).
- I use Condor to distribute many jobs to search independent subtrees of a larger search. To get adequate parallelism, the high-performance faculty and staff are helping me integrate and execute.
- Broadening the user base, in the long term, will be of greater value than deepening the existing user base. Access to people, perhaps a widely distributed peer group, will be critical to this growth.
- It does not matter whether it is campus, regional or national computing resources as long as it is available free of cost, easy to use, and with good maintenance of needed software.
- The advent of low-cost genomic lab procedures is exploding the need for computing power, especially for distributed parallel architectures
- I really don't know what it is.
- I am located off campus, so high performance computing is essential in job performance.
- We anticipate that our needs will grow in the future for high performance computing in the research area.
- Research competition is decided by faculty brain power and resources. The former without the latter does not suffice to compete.
- Of course, I may not know exactly what you mean by this phrase.
- The more CPU's and memory available the better
- Don't really know that much about it
- My work could benefit from use of data sets only available at census data centers.
- High performance computing at this institution is important as a tool for research. Faculty who cannot get hands on assistance will not adopt this tool for research.

- I need medium performance computing in a highly secured area. Security of the data is my primary concern. I would also like to get secure access to Census data as well.
- My needs have more to do with high-res image and image database management than with data-crunching capability, so I need lots of memory and help with databases rather than calculating speed.
- NA
- Only my former (1990s) research in virtual reality might qualify.
- these resources will be essential for systems biology approaches to understanding complex biological systems.
- I often need to scale up by *10-100-1000 beyond that achievable on 1 processor while maintaining a coherent SW and OS environment. For new projects, access to reasonable computing is essential.
- We need higher Internet bandwidth to advantage of high performance resources outside our institution. Training and information regarding available resources would also be very important.
- We mostly use SAS, R, or Matlab as our software platforms.
- Library linkages to databases and journals is now often frustratingly slow and unstable.
- im not sure what "High performance computing" is. I want my computer to use basic academic software and to go fast.
- Need less time in the queue - need maintenance day NOT to be mid-week - Wondering why 16 hrs of maintenance is required weekly...and why can't this be done on weekend/evenings with small fee to all us
- my answers may be invalid because I'm not sure of the definition of "high performance computing resources"
- It's not a high priority to me at all since I usually use simple programs that do not require high computing power.
- If it is provided with high cost, then I would use PC power.
- Building intuitive interfaces to tools is of higher priority than hands-on assistance. Balancing ease of access with security is also important. Cumbersome access and/or use prevents adoption.
- None
- Linux-based is pretty much critical.
- I work with off-campus students and need greater capacity for creating good learning environments outside the normal classroom
- We do programs in parallel and the magnitude of the problems is proportional to the computer capacity

Question 8

Data Storage

8.1 Access to campus/organization data storage resources.

High Priority		286 (56.63%)
Medium Priority		110 (21.78%)
Low Priority		65 (12.87%)
N/R		44 (8.71%)

8.2 Access to regional or national data storage resources.

High Priority		99 (19.6%)
Medium Priority		175 (34.65%)
Low Priority		187 (37.03%)
N/R		44 (8.71%)

8.3 Hands-on assistance to use regional or national data storage resources.

High Priority		78 (15.45%)
Medium Priority		186 (36.83%)
Low Priority		197 (39.01%)
N/R		44 (8.71%)

8.4 Off-site backup and recovery of critical data.

High Priority		193 (38.22%)
Medium Priority		148 (29.31%)
Low Priority		120 (23.76%)
N/R		44 (8.71%)

Question 9

Additional comments regarding **data storage**:

- we do our own
- I can download from OSCER really fast but the storage space is far from enough. I have account on other systems with large storage but the download and up load speed is too slow (150k upload and 1000k down load) if i want to transfer large files. Especially for up load.
- Data storage is as very important as supercomputing
- I have a shared campus drive that I suppose would be of great importance if it were backed up. For all I know, it may be.
- Adequate data storage is critical in the work I do.
- We are currently making the determination of how best to handle data storage needs of our researchers here on campus.
- On th elocal level most of us have already been burned by researcg and reference data loss. It would be nice the have storage for large numbers of digital photos, together with a cataloging system.
- free space called dropbox is frequently used. personal storage harddrive is frequently used as well
- Working on a project with the EROS Data Center. Using a linux cluster to process and display large satellite images. Images are transferred from EROS Data Center.
- As above w/ computing.
- I will store and backup my own data, but I must have campus backup for e-mail.
- would like to have more storage for a student to work on
- Up to now, I never used HPC in UNL. That is why for the next question, I answer: I am not a user. My codes will be written to store some data and to read them after. Due to the large size of the box and the basis used, I welcome all facilities concerning the data storage.
- Need to provide integrated access to resources rather than separated, autonomous resource access to feed the computational resources as well.
- Terabytes are cheap these days.
- There will be needs for many Petabytes of storage capability, and there is already a huge need for personal computer and Core Facility data backup storage
- You can never have enough data storage
- As we move to Electronic Medical Records, a failure of access will be difficult to catastrophic. When patient records are available only on the computer, and the computer goes down, as it will inevitably, the consequences for patient care could be disastrous.
- There is a need for backup of data stored on stand alone computers not connected to any

network.

- We've been using TeraGrid resources for storage, but we're currently unable to due to the lack of bandwidth. We have our own storage and backup system for our data (200TB+). We would like a campus/regional off-site backup and/or data archival system (where it is relatively easy to bring back data).
- My campus IT environment currently meets storage and backup needs for data we house in our campus-based systems. We are in partner relationships where regional storage and related services might be useful.
- Need backed up storage for 100's of GB and temporary storage for multiple terabytes
- The University Hospital uses an off-site storage facility for images that we can access on campus for our classes. We also have a student clinical progress tracking program that facilitates capturing/storing/grading each student's clinical experience throughout the professional phase of the program.
- The documentation center archives electronically at the University of Texas at Austin. The archive staff has been very helpful there.
- I am trying to store some important data on the server some times ago, but later the some service of the sever was removed and my data was lost, so I never do that again.
- I like that data on our network server is backed up 2x daily. This gives me a sense of security, knowing that I can never lose more than a half-day's of work.
- I am semi-retired and no longer involved in research.
- Secure data storage is absolutely essential
- I'm assuming that the ability to back-up on a university server doesn't count as "data storage resources" for the purposes of this survey.
- I do not have a personal need to access these resources. However, the nature of my job requires that I support access to these resources, so I like to have a basic understanding of them.
- I take care of this on my own computers.
- I use my own high end computing servers and RAID acquired under NASA research grant funding; I also am trying to use NASA cloud computing resources. My biggest problem is moving TB of data from SDSU into a NASA cloud computing environment - the SDUS on campus internet connectivity is insufficient.
- Are you talking about a huge database that would store all the enrollment date for kids so that it could be accesses safely at county, regional and state levels?
- Recommend On-site back-up and recovery as well
- Data storage along with protocols, standards and tools for structured, machine-actionable metadata are an emerging need
- 8.2 and 8.3 are variable depending on what I'm doing during a given semester
- My unit works closely with campus IT; our data are stored in a building w/ 27/7 security. Campus IT security completed an audit of software considered most vulnerable; identified risks have been reprogrammed. The electronic security audit is ongoing. An audit of our physical space was conducted.
- We currently have our own automated backup solution.
- I don't need lots of data, just computation time.
- SDSTA will be moving it's off-site backup storage to SDSM&T accessing through CI.
- Off-site backup and recovery is crucial in case of natural disaster, etc.
- Backup of read-only data is inherent in sufficiently distributed replication; the digital library development establishes this fact. There is a strong relationship between transaction rate (write rate) and backup needs; this merits careful study.
- Needed badly...
- By the standards of some fields (eg. physics, geosciences) the data storage needs of biologists remain small (terabyte-scale) but are rapidly growing. However, the ratio of computation to data is much higher for modern (eg. molecular) biology than it is for these other fields.
- good idea to have off site back up
- There are times when too much is backed up, so changing or deleting files can be a chore. However, overall, it is great to have data storage.
- Research data storage is reasonably large, 100-500gb per project, but the life requirements of the storage is generally 5 years or less.
- Data curation issues are important.
- Storage isn't a priority for me because I manage my own storage system
- Would be important for data collection intensive projects such as daily or weekly environmental monitoring setups.
- I do not require large scale data storage, but do see that off-site backup and recovery would be

- useful.
- Data storage must guarantee availability and security.
 - I use very sensitive data, so off site storage is not acceptable. I need to have very secure access to data.
 - NA
 - I would like to have space to store supporting data for publications as well as original field data.
 - Much of what I do is IO limited, so unless bandwidth improves local solutions are preferred.
 - This is especially important for our NIH funded grants.
 - Secure uncorruptable data storage is essential.
 - Mass data storage is not convenient or provided....this is a must....
 - This sounds like a valuable service GPN could provide, no idea about logistics.
 - Data storage, primarily access to UM-System database systems at Kansas City and Columbia, MO, is critically important
 - Hard disk with large capacity is affordable, but less convenient than high speed, company provided/low cost network storage. If the network based data storage is much more expensive, I would just use my own hard disk.
 - None
 - I need lots and lots of storage for backups; my data sets are quite large. None of the current systems fit this need, so I buy large USB external drives on my own dime.
 - I personally don't have a lot of data to store but if we had a lot of audio and video content for cyberlearning resources we would need quite a bit with access and support for both faculty and students, maybe even our community supporters such as field agencies, etc.
 - Storage costs are outpacing computational costs again.

Question 10

I am a

User		251 (49.7%)
Non-user, but aware of available resources		118 (23.37%)
Neither		92 (18.22%)
N/R		44 (8.71%)

Question 11




I am a

User		101 (20%)
Non-user, but aware of available resources		162 (32.08%)
Neither		198 (39.21%)
N/R		44 (8.71%)

Question 12

I am a

User		253 (50.1%)
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Non-user, but aware of available resources		92 (18.22%)
Neither		116 (22.97%)
N/R		44 (8.71%)

Page 3

Question 13

My campus/organization currently supports **shared high performance computing resources** with a total size of

100 or fewer cores		27 (5.35%)
101 - 1,000 cores		50 (9.9%)
1,001 to 10,000 cores		45 (8.91%)
over 10,000 cores		4 (0.79%)
Don't know		241 (47.72%)
N/R		138 (27.33%)

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Question 14

My campus/organization currently supports **shared data storage resources** with a total size of

1 to 10 Terabytes		26 (5.15%)
11 to 100Terabytes		39 (7.72%)
100 Terabytes to 1 Petabyte		22 (4.36%)
Greater the 1 Petabyte		2 (0.4%)
Don't know		362 (71.68%)
N/R		54 (10.69%)

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Question 15

Education and Facilitation

15.1 Live training in emerging CI-related technologies.

High Priority		108 (21.39%)
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Medium Priority		177 (35.05%)
Low Priority		140 (27.72%)
N/R		80 (15.84%)

15.2 Web site featuring emerging CI-related technologies.

High Priority		143 (28.32%)
Medium Priority		196 (38.81%)
Low Priority		86 (17.03%)
N/R		80 (15.84%)

15.3 Online demonstrations of emerging CI-related technologies.

High Priority		138 (27.33%)
Medium Priority		205 (40.59%)
Low Priority		82 (16.24%)
N/R		80 (15.84%)

15.4 Regular email communication on the latest developments in CI.

High Priority		103 (20.4%)
Medium Priority		166 (32.87%)
Low Priority		156 (30.89%)
N/R		80 (15.84%)

15.5 Inventory of CI resources available across my campus/organization.

High Priority		181 (35.84%)
Medium Priority		162 (32.08%)
Low Priority		82 (16.24%)
N/R		80 (15.84%)

15.6 Inventory of CI resources available regionally and nationally.

High Priority		122 (24.16%)
Medium Priority		180 (35.64%)
Low Priority		123 (24.36%)
N/R		80 (15.84%)

15.7 Searchable knowledgebase of CI expertise (people, tools, applications, resources) in my field.

High Priority		176 (34.85%)
Medium Priority		167 (33.07%)
Low Priority		82 (16.24%)
N/R		80 (15.84%)

15.8 Affinity group of individuals who communicate regularly to discuss developments in CI.

High Priority		71 (14.06%)
Medium Priority		180 (35.64%)
Low Priority		174 (34.46%)
N/R		80 (15.84%)

15.9 Opportunities for collaboration.




High Priority		142 (28.12%)
Medium Priority		166 (32.87%)
Low Priority		117 (23.17%)
N/R		80 (15.84%)

15.10 Assistance in CI resource discovery.

High Priority		104 (20.59%)
Medium Priority		188 (37.23%)

Low Priority		133 (26.34%)
N/R		80 (15.84%)

15.11 Assistance in identifying potential collaborators.

High Priority		109 (21.58%)
Medium Priority		157 (31.09%)
Low Priority		159 (31.49%)
N/R		80 (15.84%)

Question 16

I would like to use CI for **classroom teaching**?

Yes		133 (26.34%)
No		292 (57.82%)
N/R		80 (15.84%)

Question 17

If you answered "Yes" to the previous question: I have access to necessary hardware, software and other resources to accomplish this? (please explain)

Yes		74 (14.65%)
No		68 (13.47%)
N/R		363 (71.88%)

Comments Text:

- I am within 25 miles of a Technical Resource Center with ITV, high speed, etc
- Computational Chemistry continues to be supported by UM-CI.
- There's Internet in every classroom at my campus/organization. I can bring a laptop computer to the classroom. Some classrooms have computers ready to use. Software is provided for staffs use by the IT department at my campus/organization.
- I have a computer with Blackboard access. I have used created streaming video with a streaming video account. So I suppose I could use CI from my office.
- It would be useful to have additional resources available for more distant integrated access for demonstrating global sharing capabilities; both computational and storage.
- At present I use a small departmental linux cluster and the university linux cluster in my

course.

- I really don't know.
- I think I do but probably not as I am not sure
- I think this is available to me but I have little working knowledge about CI so am not sure of all technical requirements
- Not sure
- information resources and services available
- The answer to both these questions is really "maybe" and "it depends".
- Although I don't currently teach, I want this available for our faculty.
- i don't know
- Limited access only and not usually available locally.
- I'm not actually sure what is meant by using CI for classroom teaching. If it's access to the internet or to online teaching modes like Wimba, then yes. If something else, then I'm not sure.
- I'm not really sure. I have access to Blackboard, University Library System, and about anything on the internet in my classroom.
- Don't know what is needed
- Ag. Eng. instruction classrooms are set-up with Multi-Media units with web access. Our conference room is set up with the same pulse a telecom system.
- unsure if we do or not
- The campus lacks sufficient software resources in this area, most notably DRM
- I don't know--I need more information on how this can help me achieve research and teaching goals.
- I teach in a stick classroom as well as a computer lab.
- I think so.
- There is far too much Windows/Mac-only software and hardware required for use in the university, and a complete lack of Linux support from the staff (other than the local department IT guy).
- I teach my classes in classrooms with a computer at every desk. Additionally, the students can access the resources over the campus network and Internet.
- I teach online
- Not sure what CI is ? Could you define this somewhere?
- I don't know. I have a pretty good laptop and decent DSL (1500mbps when it's working well - this is relatively new for me. Was just installed recently in our geographic area.)
- I use Blackboard
- I have no idea what you are talking about on this page. What is CI? Why did you force me to respond and not give me a "NA" or "don't know" option? Are you collecting useful data?
- While I have am currently up to date with my hardware requirements, cuts in funding may affect my computing capabilities in the next couple of semesters. I will need to upgrade my laptop and the possibilities look bleak.
- This is actually, "do not know"
- I would like some radiology specif equipment.
- With high speed communication channel and newtwork storage, I probably would not need so many desk tops and laptops in office and home.
- I don't really know if CI would be applicable to my teaching or not.
- I am using a lecture capture product. The classrooms I teach in are currently adapted for this use.

- We use blackboard and we can save many teaching tools on this.
- I don't teach here, not my area of expertise.
- Tegrity, Blackboard
- The student lab computing space is limited on campus.
- I taught lectures in next-generation sequencing analysis on a bioinformatics service course. The available resource was insufficient.
- I have no idea what I am responding to - is this survey about just classroom technology?
- The resources in the Learning Studios on campus have enhanced the effectiveness, comprehensiveness, and creativity of my teaching and have facilitated student's development through hands on, collaborative, and research activities.
- My core facility runs a cluster (250+ cores) that is primed to bioinformatics/computational biology (i.e. all needed software and databases installed + regularly updated) which I, and other faculty, use for classroom teaching in this domain.
- Very little funding available
- Hardware is in place, but without enough technical support. Technical support of HPC is nearly non-existent on my campus.
- As a Teaching Assistant, I know that there are many web/computer based demonstrations and hands on activities available. However, we don't have necessary resources in every class room on campus.
- I currently use Computer Science hardware for CS projects. (computer labs, servers, software). Storage is not critical for this.
- I have worked with our HPCC to use the servers for analyzing large datasets in a "thin-client" setup within workshops and courses. This needs to be expanded.
- My division must maintain and support our unit's CI with little support from campus or institutional support.
- I have not yet accepted a teaching position.
- Shared department cluster for teaching molecular dynamics
- I am student and they don't teach the classes that would allow to get the best use of the resources.
- Class rooms do not equipped with visual hardware
- For the three above questions, I answer but I don't know what means the abbreviation CI. I think if it is an important resource to facilitate the communication, I welcome this.
- What is "CI"? Cyberinfrastructure?
- In some classroom, yes.
- For the past 5 years, we have mostly provided for our own resources for distance learning and collaboration. We have made use of some resources provided by the state of Kansas but have recently adopted a university solution.
- Student resources are controlled via research group and specific to classes; very small range of free use
- I demo software packages the students then use. I am guessing "CI" means "Computer Instruction" ???
- Temporary student accounts are policy traps for multi-institution workshops.
- I have access to some "CI" for instruction, but some things are missing, e.g. any kind of facility for parallelization of statistical simulation.
- John Matrow of HIPECC at WSU has been extremely helpful in guiding students in courses (and research students) to better utilize resources
- I'm currently not teaching but I'll be nice introduce students to heavy computing demanding

problems

Question 18





Additional comments regarding **education and/or facilitation**?

- More training is needed in order to take full advantage of the CI resources
- Just one, regarding education of students: I wish a lot more students would be exposed to CI early on in their career.
- the tools are not usually the limiter, the focus should be on the application of the CI facilities to improve the educational experience
- Good documentation is nice.
- I would need to understand how others use these resources. I can see that it might be useful in epidemiological modeling and in the teaching of quantitative pathology.
- I prefer personal instruction as superior communication.
- My biggest problem is lack of time to explore and learn more about High Performance Computing. Being an instructor and departmental classroom/lab administrator makes it difficult to explore more.
- I am student and they don't teach the classes that would allow to get the best use of the resources.
- My wish is just to continue to facilitate the communication and education by using new technology not in all fields because some fundamental things should be kept.
- Need to develop useful examples of CI usage to help teach and learn about CI for novice users as well as more expert users.
- I teach a computationally intensive subject, and all I need is a laptop.
- Skill sets re. computer resources is a measure of success at our University. As such, even the sharing of computer technological skills is reduced to protect "turf". Central tools would improve this.
- I'm very interested in any technology that helps me teach more effectively and am very interested in education/facilitation of this.
- I do not have a personal need to access these resources. However, the nature of my job requires that I support access to these resources, so I like to have a basic understanding of them.
- Don't know what I just completed
- It's good for youth specialists to know about upcoming technologies, so that we can keep up with/ share with youth. I wish I knew what you were talking about.
- Availability of software can be as much of an issue as availability of hardware.
- Would like to see this information provided via webinars.
- Lectures need to be 'canned', we can not experiment every time we use computing resources in the classroom. Canned routines that demonstrate concepts are what seems to work.
- I'm not sure how I'd use cyberinfrastructure in classroom teaching so it's hard to answer question 16!
- NA
- Emeritus, I only teach in Perú and Mexico.
- See above.
- I don't think we really know all of the resources available. My expertise is from using the NSF supercomputer grants about 10 years ago.
- I am not involved in classroom teaching
- Not at this time, but in the future.
- Education and facilitation should not be expensive, and should be easy to do. The key issue is still how much it would cost to actually use CI and networked data storage.
- Again, ease of access and ease of use reduces the need for help.
- Social workers are not typically early adopters of new technology. We teach using ITV, Blackboard, etc but I wouldn't say any of us are proficient. So implementing newer technologies would probably take
- Although I am not active now, I have been and may do so in the future. These resources are critical for the future.



Question 19

Promotion and Cost Containment




19.1 Help in promoting my/my campus/my organization's CI work to regional and national organizations.

High Priority		77 (15.25%)
Medium Priority		151 (29.9%)
Low Priority		188 (37.23%)
N/R		89 (17.62%)

19.2 Help in promoting my/my campus/my organization's networking work to regional and national organizations.

High Priority		70 (13.86%)
Medium Priority		157 (31.09%)
Low Priority		189 (37.43%)
N/R		89 (17.62%)

19.3 Help in identifying possible revenue streams for my/my campus/my organization's CI efforts.

High Priority		112 (22.18%)
Medium Priority		155 (30.69%)
Low Priority		149 (29.5%)
N/R		89 (17.62%)

19.4 Help in identifying cost containment/avoidance strategies for my/my campus/my organization's CI efforts.

High Priority		110 (21.78%)
Medium Priority		148 (29.31%)
Low Priority		158 (31.29%)
N/R		89 (17.62%)

Question 20

Any additional comments regarding **promotion and/or cost containment**?

- None
- I am not sure if I understand Question 19 correctly.
- The campus faculty/staff/researchers need to be made more aware of all of the opportunities that exist. Both locally and regionally.
- I don't really know what CI is.
- not sure
- Cost containment can come from better collaboration capabilities for sharing CI resources across the regional and national arenas.
- If there were a lower ranking, I'd award it. My university is currently using centralized facilities as an excuse for cutting support of distributed computing. It's actively hurting my own research.
- This is NOT an area where ANY organization should be scrimping at this time. POUR money into computing before it's too late.
- There's no time to involve myself in promotion or cost containment.
- I do not have a personal need to access these resources. However, the nature of my job requires that I support access to these resources, so I like to have a basic understanding of them.
- I had to give up paying \$4000/yr to maintain a very useful license I had for years.
- I said "Low Priority" for 19.1-4 because, to some extent, I am involved in all of them (except 19.4) as user, but these tasks are not sufficiently central to my mission to feel a need to ask for help.
- Solid, modern, well-maintained CI infrastructure can greatly cut faculty startup-cost for computational people in STEM fields.
- There is no effective shared computing facilities on my campus. To be effective it must be reliable and managed knowledgeably.
- Here again, why did you force me to choose when I don't know what you are asking about?
- without such cost containment support, our campus will likely never be serious about developing these capacities, and we'll continue to fall further behind.
- As soon as it gets fixed, we can talk about promoting it ! Basically at the moment, I am close to "on my own" in survival mode, with very little actual local support.
- I don't have time to promote or cost contain.
- Other faculty may have promotion as a higher priority.
- I don't understand these questions. Is the "help" asking if I want/need help or am I willing to help.

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Question 21

Additional comments regarding cyberinfrastructure/networking needs and assistance that may be provided via the GPN consortium.

- On paper OU's high performance computing looks great. However, for those of us in genomics, it does not allow running interactive jobs, only batch jobs. Since our database and multiple sequence alignments require an unpredictable amount of cpu time, it is next to impossible for us to use.
- These questions were a little strange to be, but I filled it out anyways. I am a systems administrator for a HPC cluster, not a user, but I have the need for more regional storage, potential grid opportunities, etc...
- more training for the students in the not so big universities.
- Networking problems seem to be concentrated at the local and regional level.
- Assistance in knowing about and how to access shareable resources in the region is of significant interest to SDSU.
- GPN can assist in encouraging more active developers for regional CI development as it has done in connecting the wires and fiber. Having CI resources requires integrated access to the resources to facilitate their use in research and education. The impediments to usage needs to be overcome.
- Most of the suggestions here were good ones.
- Resources need to be "self serve" in order to promote usage through convenience.
- Need as much bandwidth as possible into my lab. Current network bandwidth to the campus and my building is inadequate
- Improve on campus bandwidth - the NREN is great - but the on campus bandwidth is a bottleneck.
- Security issues need to be discussed
- I hope this survey instrument is not a good example of processing speed. It took approximately 1

minute to open the initial page, then approximately 15 seconds to advance from one page to the next.

- Personal computers provided to researchers should be systems with hardware no more than three years old. Conducting research on a scale that does not require huge distributed resources (supercomputer), but can be efficiently done on a adequate personal computer will be beneficial.
- Power and A/C requirements are two of the biggest issues anywhere
- Users should be REQUIRED to provide service that benefits CI growths.
- Regarding data storage, much of what I do involves reading and writing sequentially large volumes of data, which is not well suited to NAS or off-site solutions especially given existing network infrastructure, and we currently try and manage local RAID systems with about 20 TB of data.
- Need maintenance to be done on weekends - having it from 8am-midnight on wednesday is a total disruption of the workweek and necessitates the need to work on weekends in order to complete my research tasks. Furthermore, preference in the queues should be eliminated.
- Faster links to home to help me get more done quickly when I'm working from home.
- would have been nice to have % completed bar on survey pages

Question 22

22.1 I would like to be informed of the results of this survey.

Yes		171 (33.86%)
No		224 (44.36%)
N/R		110 (21.78%)

22.2 I would like to be included in any follow-up surveys.

Yes		128 (25.35%)
No		264 (52.28%)
N/R		113 (22.38%)

22.3 I would like to be notified of new developments related to cyberinfrastructure.

Yes		188 (37.23%)
No		204 (40.4%)
N/R		113 (22.38%)

Question 23

If you answered **yes** to any of the previous items, please indicate your email address for follow-up.

-
-
-
-
-
-

Appendix 5: GPN Survey 2 Results

AXIO SURVEY

SURVEY REPORT

Summary

Survey Name:

Great Plains Network Service Priority Survey

Offering Name:

Official Survey

Offering Date:

5/26/10 to 7/9/10

Statistics

A total of **127** people started this survey.

98 people completed it.

29 people quit before completing it.

Number of people who left the survey without completing it per page number:

- Page 1: **26**
- Page 2: **10**
- Page 3: **5**
- Page 4: **5**
- Page 5: **1**
- Page 6: **1**
- Page 7: **3**
- Page 8: **1**
- Page 9: **1**
- Page 10: **0**
- Page 11: **2**
- Page 12: **0**

Average completion times:

- Average Time To Complete Survey: **14 minutes 52 seconds.**
- Average Time Spent Before Quitting: **9 minutes 52 seconds.**

Page 1

Question 1

I am a

Faculty Member		73 (57.48%)
Researcher		28 (22.05%)
Technical Staff Member		9 (7.09%)

- University of Nebraska Medical Center
- Oklahoma State University
- DSU
- South Dakota School of Mines
- Dakota State University
- South Dakota School of Mines & Technology
- SDSM&T
- oklahoma state university
- Univ of Kansas
- South Dakota State University
- University of Nebraska - Lincoln
- Dakota State University
- Univ. of Oklahoma
- South Dakota School of Mines and Technology
- Dakota State University
- The University of South Dakota
- University of Kansas
- Wayne State College
- OneNet
- SDSU
- Black Hills State Univesity
- South Dakota State University
- University of Nebraska-Lincoln
- The University of South Dakota
- University of Missouri
- University of Kansas
- University of Missouri - St. Louis
- University of South Dakota
- sisseton wahpeton college
- Kansas State University
- missouri
- South Dakota School of Mines and Technology
- uno
- University of Kansas
- University of Missouri
- Kansas University
- university of nebraska
- University of Kansas
- Univ. of Kansas
- university of Missouri-columbia
- University of Kansas
- Langston University
- University of Nebraska-Lincoln
- SDSU
- University of Nebraska Medical Center
- University of Nebraska-Lincoln
- South Dakota State University
- University of Nebraska
- University of Missouri
- KU
- SD School of Mines and Technology
- University of Kansas
- University of Nebraska at Omha
- University of Nebraska Lincoln
- University of Nebraska-Lincoln
- University of Kansas
- SDSU
- The University of Oklahoma
- University of Missouri-Kansas City
- Department of Engineering Mechanics
- University of Nebraska-Lincoln

- KanREN
- University of Kansas
- The University of Kansas
- unl
- University of Nebraska at Omaha
- Kansas State University
- South Dakota State University
- South Dakota School of Mines & Technology
- SDSTM
- University of Oklahoma
- SDSU
- University of Nebraska
- University fo Missouri-Columbia
- University of Nebraska-Lincoln
- Dakota State University
- University of Nebraska Medical Center
- University of Nebraska Lincoln
- UNIVERSITY OF CENTRAL FLORIDA
- University of Nebraska-Lincoln
- South Dakota State University
- South Dakota School of Mines
- University of Missouri
- University of Missouri
- University of Oklahoma
- Oklahoma University Health Sci. Ctr.
- The University of Kansas
- RESPEC
- University of Nebraska - Lincoln
- East Central University
- University of Missouri
- Kansas Board of Regents, Kan-ed
- SD School of Mines and Technology
- Southern Nazarene University
- South Dakota School of Mines and Technology
- UNL
- University of Oklahoma
- University of Kansas
- University of Central Oklahoma
- Widener
- Augustana College
- ECE Dept
- ku
- Oklahoma State University
- SDSU
- south Dakota State University
- South Dakota State University
- South Dakota State University
- Dakota State University
- South Dakota State University
- SD Board of Regents
- Oklahoma State University
- Oklahoma State University
- NSU
- Oklahoma State University
- SDSM&T
- University of South Dakota
- University of Oklahoma
- civil engineering

Question 5

My area of expertise is

- Laser Diagnostics
- Engineering
- natural language technology, text processing, linguistics
- neuroscience, motor control, brain development
- theoretical chemistry
- Software Engineering
- Bioinformatics & comp. biol., esp. the management & analysis of next generation (DNA) sequence data
- Mathematics
- Computer Science
- Atmospheric Sciences
- Information literacy, information retrieval, user-centered web design, library science
- atmospheric physics and chemistry
- Computer Science
- physics
- Political Science
- Manufacturing, Management
- Scientific computing, parallel computing, algorithms
- Information Systems
- Electrical engineering/communications theory
- Instruction and Information retrieval
- Research Computing
- social science data
- Physical/Computational Chemistry
- Networking and application services
- Mathematics and statistics
- STEM Education
- Climate, climate impacts, variability and changes. Environmental data collection.
- FEM analysis
- Research Computing
- High performance computing and networking
- Land-atmosphere interactions, atmospheric science, remote sensing
- Infrastructure
- Materials Chemistry
- grant writing and construction management
- Population genetics
- computational biology
- Structural Engineering
- physics
- biochemistry
- Seismology
- Technology, infrastructure, instructional/classroom technology, HPC, logistics, technology support
- biochemistry
- Communication Studies
- Particle physics
- machine learning, bioinformatics, bayesian analysis, markov chain monte carlo
- Complex Analysis, Operator theory, Applied/Industrial Mathematics
- Harmonic generation, Double Ionization and Ionization-excitation of two active electrons systems
- Engineering
- Human Genetics
- Crash Analysis using LS-DYNA
- cell and developmental biology
- Computer Science
- Computational mechanics, laser-material interaction, solid/structure mechanics
- Engineering
- polymer matrix composites
- Astrophysics--multidisciplinary applications
- Web programming. Parallel Programming(C,MPI,OpenMP,GMP).
- Bioinformatics

- statistical and theoretical ecology
- Scientific computing, high performance computing
- Biophysics/Biochemistry
- Solid state / semiconductor nanostructure theory
- Condensed matter physics and materials science including biomaterials and science
- Computation mechanics
- AMO Physics, Electron-molecule scattering, atomic and molecular structure
- Psychology/Behavioral Neuroscience
- Structure and function of drug metabolizing enzymes
- modeling
- Theoretical condensed matter physics
- Computer Science
- Geographic Information Science - landscape ecology, spatial epidemiology, ecological modeling
- Analytical chemistry
- Grid Computing and High Throughput Computing
- Geospatial Technologies
- Medical imaging and biosignal processing
- Statistical bioinformatics
- Materials Engineering
- Information Systems
- Magnetic Resonance Imaging development and application.
- Structural engineering - dynamics
- COMPUTATIONAL MATERIALS SCIENCE
- High Performance Computing
- hydrology, data analysis
- Numerical Weather Prediction, Regional Climate Modeling, Land-Surface Hydrology
- civil engineering - water resources
- microbial genomics and microbial pathogenesis
- Formal methods
- Laboratory scale determination of mechanical properties of geologic materials (rock)
- wireless sensor networks
- Physical Chemistry; High Temperature Chemistry and Thermodynamics, Computational Chemistry
- Computational Mechanics
- funding and development strategies, R&D policy, technologies that support collaboration
- Metallurgical Engineering
- Computer Science
- Molecular Dynamics of biomolecular interfaces
- Constraint Programming
- High performance computing
- Formal Methods, Security, System-level Design
- Fluids Engineering
- Solid state physics, computational physics
- Analytical chemistry
- Environmental Informatics
- Grassland ecology
- agriculture, land use/land cover, remote sensing , geospatial sciences, project management
- Drug Discovery
- Nutrition behavior and education
- Nursing, leadership/management, human factors affecting the workforce, sleep disturbances;
- Educational Technology
- HPC administration
- CI, technology and policy development for the university system.
- Cell Biology / Evolution
- Plant Systematics and Evolution
- Physical Chemistry
- Facilities Project Management
- Development of nanomaterials for diagnostics and drug delivery
- earth sciences

Question 6

Computation (includes GPN assistance using and assistance gaining access to computational resources)

Important to me		93 (73.23%)
Important to my campus, but not to me		19 (14.96%)
Not important		5 (3.94%)
N/R		10 (7.87%)

Question 7

Data Storage (includes GPN assistance using and assistance gaining access to shared data storage resources)

Important to me		89 (70.08%)
Important to my campus, but not to me		22 (17.32%)
Not important		6 (4.72%)
N/R		10 (7.87%)

Question 8

Networking (includes GPN providing access to advanced networks for research and education)

Important to me		101 (79.53%)
Important to my campus, but not to me		14 (11.02%)
Not important		2 (1.57%)
N/R		10 (7.87%)

Question 9

Education & Training (includes GPN annual meetings, workshops and on-line/on-site training provided to you and your campus in technology-related areas)

Important to me		85 (66.93%)
Important to my campus, but not to me		24 (18.9%)
Not important		8 (6.3%)
N/R		10 (7.87%)

Question 10

Collaboration (includes opportunities through GPN to identify and participate with others who share similar research and technical interests)

Important to me		96 (75.59%)
Important to my campus, but not to me		15 (11.81%)
Not important		6 (4.72%)
N/R		10 (7.87%)

Question 11

Communication (includes regular communication by GPN to inform about national initiatives, proceedings of national meetings, activities of funding sources and other activities that impact research and education)

Important to me		80 (62.99%)
Important to my campus, but not to me		28 (22.05%)
Not important		9 (7.09%)
N/R		10 (7.87%)

Question 12

Help (includes GPN centralized assistance that may be available online or live to learn about and access cyberinfrastructure resources)

Important to me		83 (65.35%)
Important to my campus, but not to me		28 (22.05%)
Not important		6 (4.72%)
N/R		10 (7.87%)

Question 13

Expertise and Resource Referral (includes compiling and maintaining databases of information on people, tools, applications, resources available across the region)

Important to me		78 (61.42%)
Important to my campus, but not to me		28 (22.05%)
Not important		11 (8.66%)
N/R		10 (7.87%)

Question 14

Other (includes cost containment, software licensing collaboration, promotion, letters of support for grant applications)

Important to me		82 (64.57%)
Important to my campus, but not to me		25 (19.69%)
Not important		10 (7.87%)
N/R		10 (7.87%)

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Question 15

Following are a list of proposed **computation services** that the Great Plains Network could provide to member institutions and faculty and staff at those institutions.

Please rank these services from **most important (1)** to **least important (6)** for GPN, a regional organization with member campuses, to provide.

15.1 Provide high performance computing facilities for research, education and training at a regional level

1		73 (57.48%)
2		10 (7.87%)
3		9 (7.09%)
4		2 (1.57%)
5		4 (3.15%)
6		6 (4.72%)
N/R		23 (18.11%)

15.2 Assist me to access and use national supercomputer centers








1		3 (2.36%)
2		25 (19.69%)
3		18 (14.17%)
4		13 (10.24%)
5		17 (13.39%)
6		26 (20.47%)
N/R		25 (19.69%)

15.3 Assist me to access and use high performance computing at other institutions in the








region

1		7 (5.51%)
2		22 (17.32%)
3		28 (22.05%)
4		20 (15.75%)
5		19 (14.96%)
6		7 (5.51%)
N/R		24 (18.9%)

15.4 Provide live on-site training in high performance computing





1		5 (3.94%)
2		7 (5.51%)
3		19 (14.96%)
4		25 (19.69%)
5		22 (17.32%)
6		26 (20.47%)
N/R		23 (18.11%)

15.5 Provide live on-line training in high performance computing (webinars, video presentations, etc.)

1		3 (2.36%)
2		18 (14.17%)
3		15 (11.81%)
4		22 (17.32%)
5		23 (18.11%)
6		24 (18.9%)
N/R		22 (17.32%)

15.6 Facilitate sharing of existing computational resources across institutions in the region

1		14
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		(11.02%)
2		23 (18.11%)
3		15 (11.81%)
4		21 (16.54%)
5		18 (14.17%)
6		13 (10.24%)
N/R		23 (18.11%)


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Question 16




Following are a list of proposed **data storage services** that the Great Plains Network could provide to member institutions and faculty and staff at those institutions.

Please rank these services from **most important (1)** to **least important (6)** for GPN, a regional organization with member campuses, to provide.

16.1 Provide data storage facilities for research, education and training at a regional level.

1		40 (31.5%)
2		14 (11.02%)
3		11 (8.66%)
4		6 (4.72%)
5		8 (6.3%)
6		12 (9.45%)
N/R		36 (28.35%)

16.2 Provide a way for me to access and use storage resources at institutions in the region.







1		11 (8.66%)
2		24 (18.9%)
3		15 (11.81%)
4		14 (11.02%)
5		16 (12.6%)
6		11 (8.66%)

N/R		36 (28.35%)
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16.3 Provide a way for me to store and catalogue my datasets

1		19 (14.96%)
2		18 (14.17%)
3		21 (16.54%)
4		15 (11.81%)
5		11 (8.66%)
6		7 (5.51%)
N/R		36 (28.35%)








16.4 Provide a way to share my large data sets or use of a data collection technique within the region

1		7 (5.51%)
2		10 (7.87%)
3		17 (13.39%)
4		30 (23.62%)
5		18 (14.17%)
6		8 (6.3%)
N/R		37 (29.13%)

16.5 Provide a way to to share my large data sets or use of a data collection technique elsewhere in the US or world.

1		5 (3.94%)
2		12 (9.45%)
3		15 (11.81%)
4		11 (8.66%)
5		23 (18.11%)
6		25 (19.69%)
N/R		36 (28.35%)

16.6 Facilitate sharing of existing data storage resources across institutions in the region

1		11 (8.66%)
2		13 (10.24%)
3		11 (8.66%)
4		14 (11.02%)
5		14 (11.02%)
6		27 (21.26%)
N/R		37 (29.13%)





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Question 17



Following are a list of proposed *networking services* that the Great Plains Network could provide to member institutions and faculty and staff at those institutions.

Please rank these services from *most important (1)* to *least important (4)* for GPN, a regional organization with member campuses, to provide.

17.1 Providing high bandwidth connectivity and related services (e.g. IPv6, VLANs, Internet2 ION service support, etc.) to other universities and other research institutions in the US.

1		83 (65.35%)
2		11 (8.66%)
3		3 (2.36%)
4		4 (3.15%)
N/R		26 (20.47%)


17.2 Providing high bandwidth connectivity and related services to other universities and other research institutions outside the US.

1		9 (7.09%)
2		53 (41.73%)
3		11 (8.66%)
4		28 (22.05%)
N/R		26 (20.47%)

17.3 Providing live on-site training in advanced networking.

1		2 (1.57%)
2		19 (14.96%)
3		45 (35.43%)
4		32 (25.2%)
N/R		29 (22.83%)

17.4 Providing live on-line training in advanced networking (webinars, video presentations, etc.)

1		8 (6.3%)
2		18 (14.17%)
3		39 (30.71%)
4		34 (26.77%)
N/R		28 (22.05%)

Question 18

Following are a list of proposed **education and training** services that the Great Plains Network could provide to member institutions and faculty and staff at those institutions.

Please rank these services from **most important (1)** to **least important (5)** for GPN, a regional organization with member campuses, to provide.

18.1 Organizing an annual meeting focusing on using advanced tools across the region.

1		16 (12.6%)
2		16 (12.6%)
3		18 (14.17%)
4		22 (17.32%)
5		12 (9.45%)
N/R		43 (33.86%)

18.2 Organizing workshops to learn about advanced tools for research.

1		34 (26.77%)
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2		27 (21.26%)
3		16 (12.6%)
4		5 (3.94%)
5		2 (1.57%)
N/R		43 (33.86%)


18.3 Organizing workshops to learn how to develop and improve campus tools.

1		11 (8.66%)
2		21 (16.54%)
3		28 (22.05%)
4		20 (15.75%)
5		6 (4.72%)
N/R		41 (32.28%)

18.4 Providing online demonstrations of emerging cyberinfrastructure-related technologies.

1		21 (16.54%)
2		18 (14.17%)
3		16 (12.6%)
4		22 (17.32%)
5		10 (7.87%)
N/R		40 (31.5%)

18.5 Attending national CI meetings and providing reports to the membership

1		6 (4.72%)
2		3 (2.36%)
3		7 (5.51%)
4		14 (11.02%)
5		53 (41.73%)
N/R		44 (34.65%)

Question 19

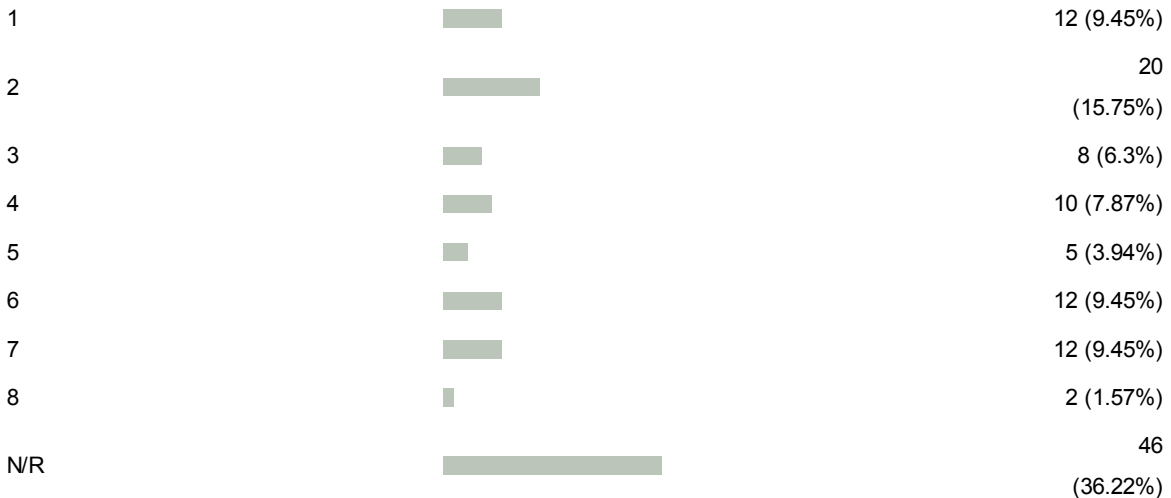
Following are a list of proposed **collaboration services** that the Great Plains Network could provide to member institutions and faculty and staff at those institutions.

Please rank these services from **most important (1)** to **least important (8)** for GPN, a regional organization with member campuses, to provide.

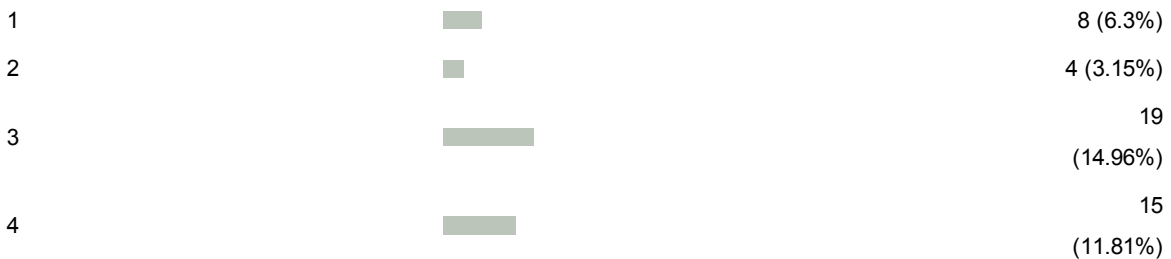
19.1 Maintaining a searchable database of opportunities for collaboration in my area of research.



19.2 Providing assistance in identifying potential research collaborators.











19.3 Supporting the creation and maintenance of affinity groups of individuals at GPN member institutions who communicate regularly to discuss developments in their area of expertise.












5		13 (10.24%)
6		11 (8.66%)
7		4 (3.15%)
8		8 (6.3%)
N/R		45 (35.43%)





19.4 Helping to make contacts with individuals with specific cyberinfrastructure expertise

1		11 (8.66%)
2		10 (7.87%)
3		8 (6.3%)
4		12 (9.45%)
5		20 (15.75%)
6		10 (7.87%)
7		7 (5.51%)
8		5 (3.94%)
N/R		44 (34.65%)

19.5 Facilitating grant requests across multiple campuses.










1		15 (11.81%)
2		7 (5.51%)
3		12 (9.45%)
4		15 (11.81%)
5		14 (11.02%)
6		6 (4.72%)
7		8 (6.3%)
8		6 (4.72%)
N/R		44 (34.65%)

19.6 Assisting my multi-campus collaboration to function as a virtual organization










1		6 (4.72%)
2		9 (7.09%)
3		17 (13.39%)
4		14 (11.02%)

5		10 (7.87%)
6		13 (10.24%)
7		6 (4.72%)
8		6 (4.72%)
N/R		46 (36.22%)

19.7 Providing wiki space for groups of collaborators.

1		7 (5.51%)
2		10 (7.87%)
3		2 (1.57%)
4		5 (3.94%)
5		4 (3.15%)
6		11 (8.66%)
7		19 (14.96%)
8		22 (17.32%)
N/R		47 (37.01%)

19.8 Maintaining mailing lists for topical interest groups of collaborators.

1		8 (6.3%)
2		7 (5.51%)
3		5 (3.94%)
4		4 (3.15%)
5		7 (5.51%)
6		8 (6.3%)
7		19 (14.96%)
8		24 (18.9%)
N/R		45 (35.43%)

Question 20

Following are a list of proposed **communication services** that the Great Plains Network could provide to member institutions and faculty and staff at those institutions.

Please rank these services from **most important (1)** to **least important (3)** for GPN, a regional organization with member campuses, to provide.

20.1 Providing regular email, blog, twitter, etc. communication on the latest developments in cyberinfrastructure..

1		35 (27.56%)
2		23 (18.11%)
3		24 (18.9%)
N/R		45 (35.43%)

20.2 Monthly newsletter on technical advances/uses across GPN and nationally

1		37 (29.13%)
2		33 (25.98%)
3		10 (7.87%)
N/R		47 (37.01%)

20.3 Regular reports to the membership on national cyberinfrastructure meetings

1		11 (8.66%)
2		24 (18.9%)
3		45 (35.43%)
N/R		47 (37.01%)

Question 21

Following are a list of proposed **help services** that the Great Plains Network could provide to member institutions and faculty and staff at those institutions.

Please rank these services from **most important (1)** to **least important (5)** for GPN, a regional organization with member campuses, to provide.

21.1 Maintaining online searchable help for cyberinfrastructure tools.





1		42 (33.07%)
2		14 (11.02%)
3		9 (7.09%)
4		9 (7.09%)
5		6 (4.72%)

N/R		47 (37.01%)
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21.2 Providing a centralized help desk model of support for locating and using regional and national cyberinfrastructure technology in your research.

1		17 (13.39%)
2		25 (19.69%)
3		16 (12.6%)
4		11 (8.66%)
5		11 (8.66%)
N/R		47 (37.01%)



21.3 Collecting case studies of cyberinfrastructure tool use.

1		6 (4.72%)
2		19 (14.96%)
3		21 (16.54%)
4		14 (11.02%)
5		21 (16.54%)
N/R		46 (36.22%)

21.4 Maintaining a database of expert reviews of advanced technology.

1		6 (4.72%)
2		8 (6.3%)
3		14 (11.02%)
4		31 (24.41%)
5		20 (15.75%)
N/R		48 (37.8%)

21.5 Maintaining a best practice repository on cyberinfrastructure technology

1		11 (8.66%)
2		15 (11.81%)
3		19 (14.96%)

4		14 (11.02%)
5		21 (16.54%)
N/R		47 (37.01%)

Question 22

Following are a list of proposed **expertise and resource referral services** that the Great Plains Network could provide to member institutions and faculty and staff at those institutions.

Please rank these services from **most important (1)** to **least important (4)** for GPN, a regional organization with member campuses, to provide.

22.1 Maintaining a searchable database of cyberinfrastructure resources available across my campus or organization.

1		37 (29.13%)
2		10 (7.87%)
3		7 (5.51%)
4		24 (18.9%)
N/R		49 (38.58%)

22.2 Maintaining a searchable database of cyberinfrastructure resources available regionally.

1		13 (10.24%)
2		35 (27.56%)
3		21 (16.54%)
4		8 (6.3%)
N/R		50 (39.37%)

22.3 Maintaining a searchable database of cyberinfrastructure resources available nationally.

1		4 (3.15%)
2		23 (18.11%)
3		36 (28.35%)
4		15 (11.81%)

N/R		49 (38.58%)
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22.4 Maintaining a searchable database of CI expertise (people, tools, applications, resources) in my field at the regional, national and international levels.

1		25 (19.69%)
2		10 (7.87%)
3		13 (10.24%)
4		30 (23.62%)
N/R		49 (38.58%)

Question 23

Following are a list of proposed **other services** that the Great Plains Network could provide to member institutions and faculty and staff at those institutions.






Please rank these services from **most important (1)** to **least important (8)** for GPN, a regional organization with member campuses, to provide.

23.1 Providing help in identifying possible revenue streams for my/my campus/my organization's CI efforts.



1		27 (21.26%)
2		2 (1.57%)
3		10 (7.87%)
4		8 (6.3%)
5		9 (7.09%)
6		4 (3.15%)
7		6 (4.72%)
8		7 (5.51%)
N/R		54 (42.52%)

23.2 Providing help in identifying cost containment/avoidance strategies for my/my campus/my organization's CI efforts.










1		4 (3.15%)
2		20 (15.75%)
3		6 (4.72%)
4		6 (4.72%)

5		7 (5.51%)
6		12 (9.45%)
7		8 (6.3%)
8		7 (5.51%)
N/R		57 (44.88%)






23.3 Providing assistance in using CI in classroom teaching for graduate classes

1		6 (4.72%)
2		9 (7.09%)
3		13 (10.24%)
4		12 (9.45%)
5		5 (3.94%)
6		5 (3.94%)
7		15 (11.81%)
8		7 (5.51%)
N/R		55 (43.31%)

23.4 Providing assistance in using CI in classroom teaching for undergraduate classes.

1		9 (7.09%)
2		5 (3.94%)
3		12 (9.45%)
4		9 (7.09%)
5		9 (7.09%)
6		8 (6.3%)
7		6 (4.72%)
8		13 (10.24%)
N/R		56 (44.09%)

23.5 Organizing and maintaining a software licensing/purchasing collaborative for GPN member institutions.










1		15 (11.81%)
2		13 (10.24%)
3		10 (7.87%)
4		11 (8.66%)
5		12 (9.45%)

6		3 (2.36%)
7		4 (3.15%)
8		5 (3.94%)
N/R		54 (42.52%)

23.6 Providing help to promote my campus or organization's cyberinfrastructure work to regional and national organizations.

1		1 (0.79%)
2		8 (6.3%)
3		7 (5.51%)
4		7 (5.51%)
5		14 (11.02%)
6		16 (12.6%)
7		14 (11.02%)
8		2 (1.57%)
N/R		58 (45.67%)

23.7 Providing help to promote my campus or organization's networking work to regional and national organizations.

1		2 (1.57%)
2		6 (4.72%)
3		7 (5.51%)
4		10 (7.87%)
5		5 (3.94%)
6		11 (8.66%)
7		11 (8.66%)
8		16 (12.6%)
N/R		59 (46.46%)

23.8 Providing collaborative tools that I can pick up and use (e.g., Adobe Connect, wikis, blogs)












1		13 (10.24%)
2		13 (10.24%)
3		8 (6.3%)
4		8 (6.3%)
5		7 (5.51%)

6		9 (7.09%)
7		4 (3.15%)
8		11 (8.66%)
N/R		54 (42.52%)

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Question 24

In your opinion, who should GPN regard as the principle customer(s) at your campus/institution (please select all that apply):

Graduate Students		43 (33.86%)
Faculty		81 (63.78%)
Technical Staff (e.g., IT, Networking)		34 (26.77%)
Director of Research Computing		36 (28.35%)
Director of Networking		15 (11.81%)
Chief Information Officer		13 (10.24%)
VP for Research		18 (14.17%)
Provost		2 (1.57%)
President/Chancellor/CEO		4 (3.15%)
Other:		2 (1.57%)
N/R		32 (25.2%)

Other Text:

- Postdoc
- Undergraduate students Comments Text:
- The heads of various organizations are not directly the customer. Rather, their subordinates are. (They have enough people bending to their needs already) Except when advising them to look beyond vendor's wining and dining to see the underlying situation, and in promoting Free Software to them.
- Administrators are important, but educating the users is most important. Getting the administrator support is a near second.
- There are certainly departments that need these resources more than Communication Studies, but I cannot speculate on their needs.
- This should be spelled principal customers
- The people that have the most direct impact on technology use by researchers and other campus clients.

