



Internet2 Navigation Redesign

Amy Grude

Nika Smith

Sylvie Khajuria Williams

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Internet2 Overview

Organizational Background

Internet2 is a consortium being led by 207 universities working with industry and government to develop and deploy advanced network applications and technologies. Internet2 is bringing together academia, government, and industry in order to accelerate the development of these applications. The primary goals of Internet2 are to:

- ◆ Create a leading edge network capability for the national research community
- ◆ Enable revolutionary Internet applications
- ◆ Ensure the rapid transfer of new network services and applications to the broader internet community.

Website

The Internet2 website was initially developed to reflect a past organizational structure, in which the company was divided into the following groups:

- ◆ Initiatives
- ◆ Applications
- ◆ Security
- ◆ Middleware
- ◆ Networks

Several years ago, Internet2 was re-organized into project groups, or working groups, with each group focusing on one application or technology (initiatives). The website did not reflect this change. The past global navigation remains on the top of the page, linking to several disjointed pages. The left navigation bar, which is links to different aspects of Internet2 is only partially global. Each working group maintains their own section of the website, leading to subsections that are different from the home page and very different from each other.

Figure 1 shows the current home page containing links that represent the old organizational structure.

New Working Groups

Old Organizational Structure

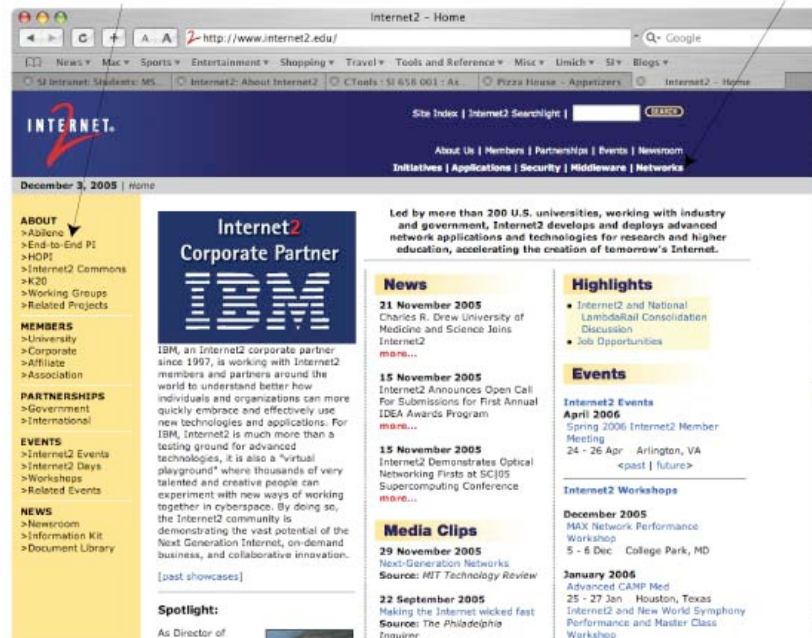


Figure 1. Current Internet2 Index Page

Figure 2 shows the Abilene working group subsection of the site.

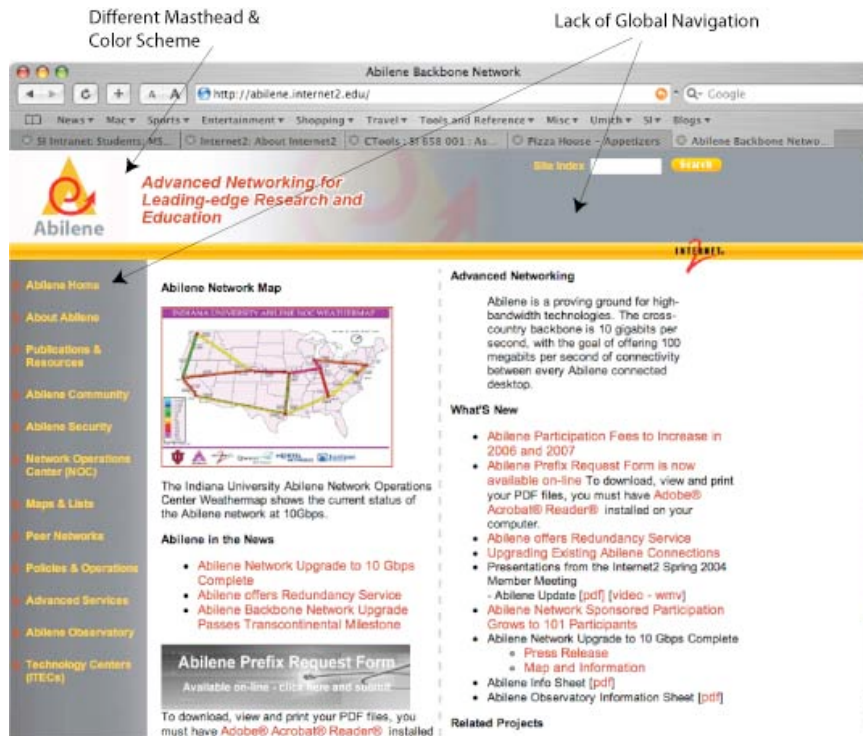


Figure 2. Example of Project Sub-site

Audience

The Internet2 site audience includes people already familiar with the organization looking for specific information on one or more technologies or developing applications, current Internet2 employees, partner organizations, financial supporters, and Individuals interested in new technology. Their audience can be broken down as follows:

- ◆ Primary Audience
 - Current and Prospective Participants
 - Current and Prospective Financial Supporters
 - Internet2 Employees
- ◆ Participants and Financial Supporters From
 - University Members (academics/research)
 - Industries
 - Government Employees
 - Individuals Interested in New Technology

The Internet2 website needs to provide easy access to these different types of groups that have varying levels of technical knowledge and may or may not have an understanding of the organization. Currently, the website provides a great deal of information that is useful to people who already have an understanding of the organization but is confusing to new visitors.

Evaluation Methods

User Experience Audit

A user experience audit was performed on the Internet2 website using the Rubinoff method of measuring branding, usability, functionality, and content. This method can be used to identify where a site stands in relation to the competition, however competitors or similar organizations to Internet2 have not been identified.

The following image represents the scoring of the four different aspects:

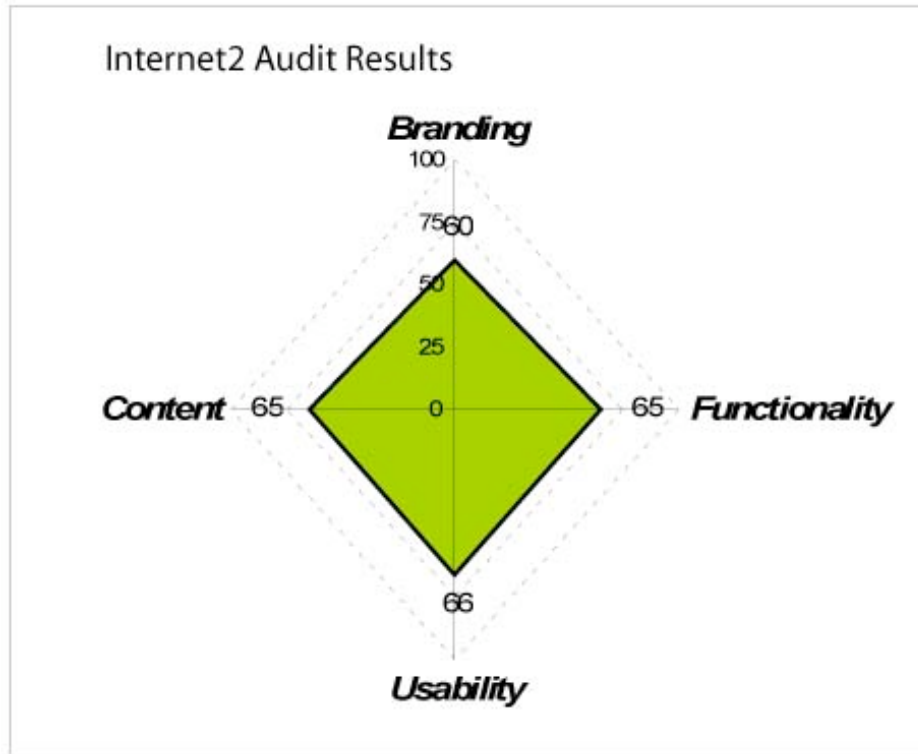


Figure 3. User Experience Audit Results. The site scored 62/100 to 63/100 in all four categories.

Though the score of each factor was approximately equal, strengths and weaknesses were identified that often increased or decreased scores across multiple categories.

Website strengths include:

- ◆ The mission, goals, and activities of the organization are clear
- ◆ Important content is highly visible
- ◆ Content is up to date
- ◆ Website is geared towards main audience
- ◆ The website adheres to common security and privacy standards

Weaknesses include:

- ◆ Inconsistency in Navigation
 - No single way of getting back to the home page
 - No single way of backtracking to previous pages

- ◆ Users are unable to anticipate the functional behavior/result of links before clicking on them
- ◆ Useable navigation systems are unavailable and not functional throughout the site
- ◆ Archived content is not meaningful or useful
- ◆ Terminology and color scheme is inconsistent across pages

After performing the Rubinoff user experience audit, it was decided that we would focus on redesigning the navigation of the site because navigational elements made up a significant portion of the weaknesses. Improvements to the navigation are perceived to be the most beneficial to improving the user experience, especially for first-time visitors

Card Sort

A card sort was performed on 4 users in order to determine how the many navigational elements of the site should be grouped. Two of the test subjects were familiar with Internet2 and two were not. The website www.websort.com was used to perform the sort, which included the first and second tiers of content.

During the card sorting activity, participants organized the 29 topics into clusters and provided labels or preferred terms for these clusters, based on their own vocabulary. Upon completion of the card sorting activity, participants were also asked to explain their method of grouping topics and any difficulties they experienced in completing the card sort. The labels provided for these clusters and the participants' thoughts about the clarity of and relationship between the topics allowed us to make informed judgments of how to organize the site better.

One issue that arose during the card sort was that the navigational elements of the site are often not grouped by the same type, which makes navigation confusing and the content hard to understand. (See Figures 4 and 5)

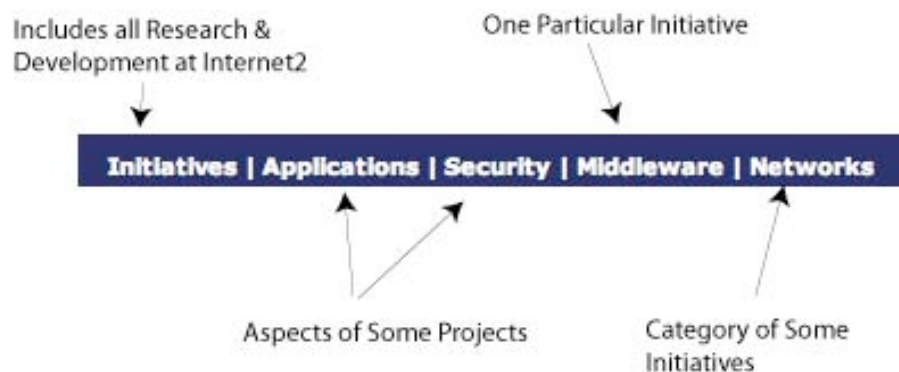


Figure 4. Global navigation reflecting old organizational structure

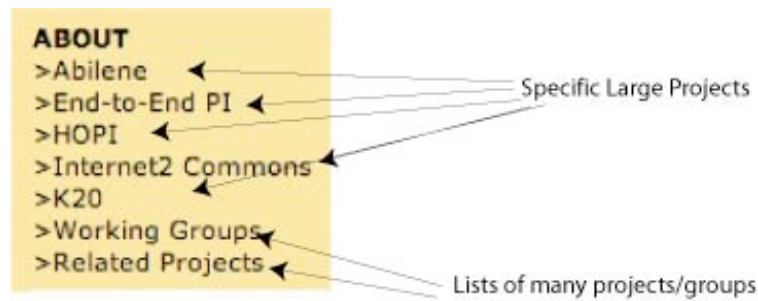


Figure 5. Section of left hand navigation with different types of items under one heading.

The full results of the card sort produced the tree diagram shown in Figure 6.

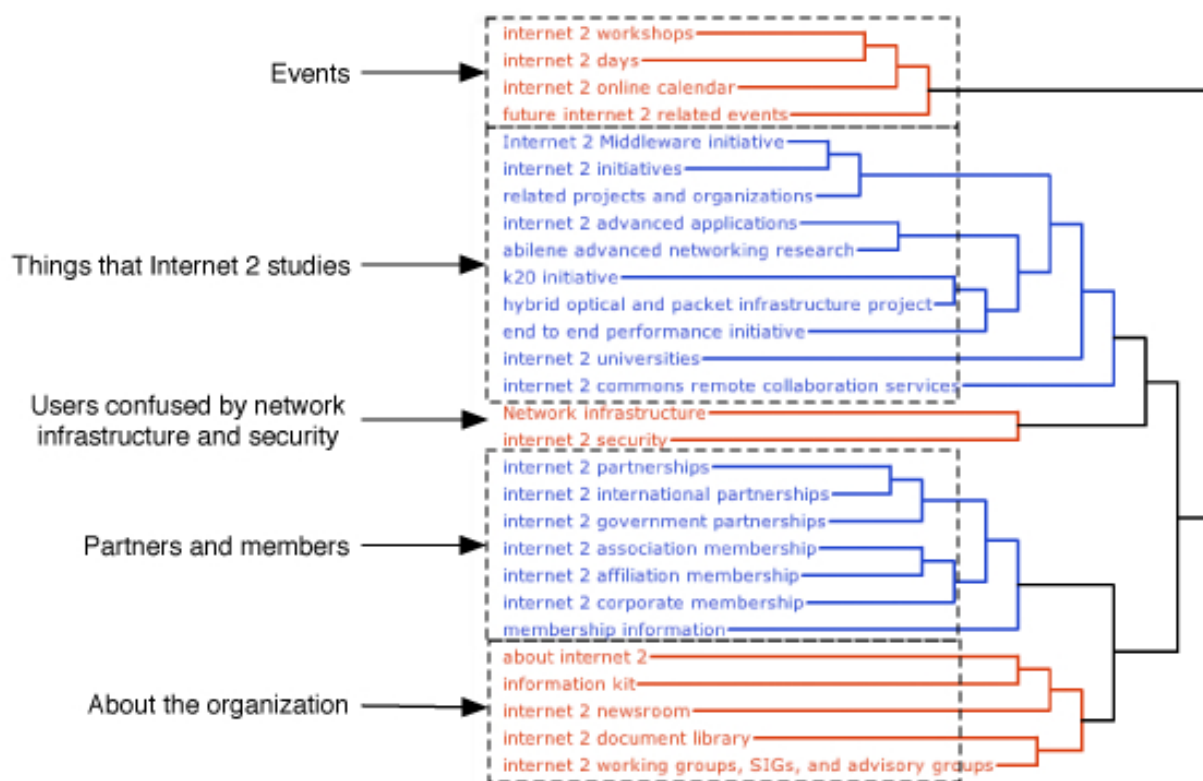


Figure 6. Tree Diagram, results of card sort.

The relationship between sorted terms is measured by the proximity or closeness that each of the terms is grouped with other terms. Each term is graphed to a tree diagram. The horizontal lines emanating from the terms represent the distance between the

groupings. The closer the two lines are to the left-hand side, the stronger the relationship between the terms, indicating that more of the participants grouped the terms together. Conversely, the closer the horizontal lines are to the right-hand side, the fewer the number of participants linked the item together. The tree diagram was constructed using a threshold of 5 clusters. Alternating blue or red text differentiates the individual clusters of topics.

“Network Infrastructure” and “Internet2 Security” are loosely connected to the other four, more defined groups, showing that the test subjects were not sure whether those labels related more to the infrastructure of the company or specific Internet2 projects.

The four groupings that stood out from the card sort are:

- ◆ Information and News about Internet2
- ◆ Internet 2 Events
- ◆ Memberships and Partnerships
- ◆ Research and Development Projects

User Feedback

In order to clarify how users perceive the various navigational elements and how they relate the “problem” elements to the rest of the site, 3 users were interviewed and their thoughts were recorded. Overall, we found that users felt confused by the individual navigational elements presented on the site, especially in understanding the difference between the links in the top navigation bar. One participant said that the label “Applications” might mean “a type of project that Internet2 does” while another participant said, “it’s hard to say... it’s not very clear.” Similarly, upon reviewing the “Middleware” link, users were not sure if it was a major categorization of content or just a single landing page. Its appearance on the top navigation bar made one participant think that it was a major category like “Applications,” while another participant noticed that the page content only indicated that it was a method of linking applications to implementation.

Finally, the user interviews showed that there was a great deal of confusion regarding how the Initiatives, Applications, Security, Middleware, and Networks were related to each other and how they were related to the separate projects. Subjects generally understood that networks was a category of project, but were confused about how to make sense of security, middleware, and applications in relation to the rest of the site.

Recommendations

Global Navigation

The card sort was used to develop the global navigation of the site. One category, “Memberships and Partnerships” was subdivided into two categories due to its large size. The different initiatives were removed from the “About Internet2” section into their own section as a direct result of the card sort as well. This makes sense when considering the audience of Internet2. Users that are not familiar with the organization are confused by the names, none of which are descriptive of what the initiative does. Users that are visiting looking for specific information on an initiative will be able to view the entire list in one click. (Previously, only the larger initiatives were listed on the index page)

The global navigation is displayed horizontally on the top bar, with the local navigation on the left. On the index page, the local navigation is a fleshed out version of the global navigation. The index page will continue to highlight several aspects of Internet2 much like it does now. Figure 7 contains a wireframe of the proposed index page.

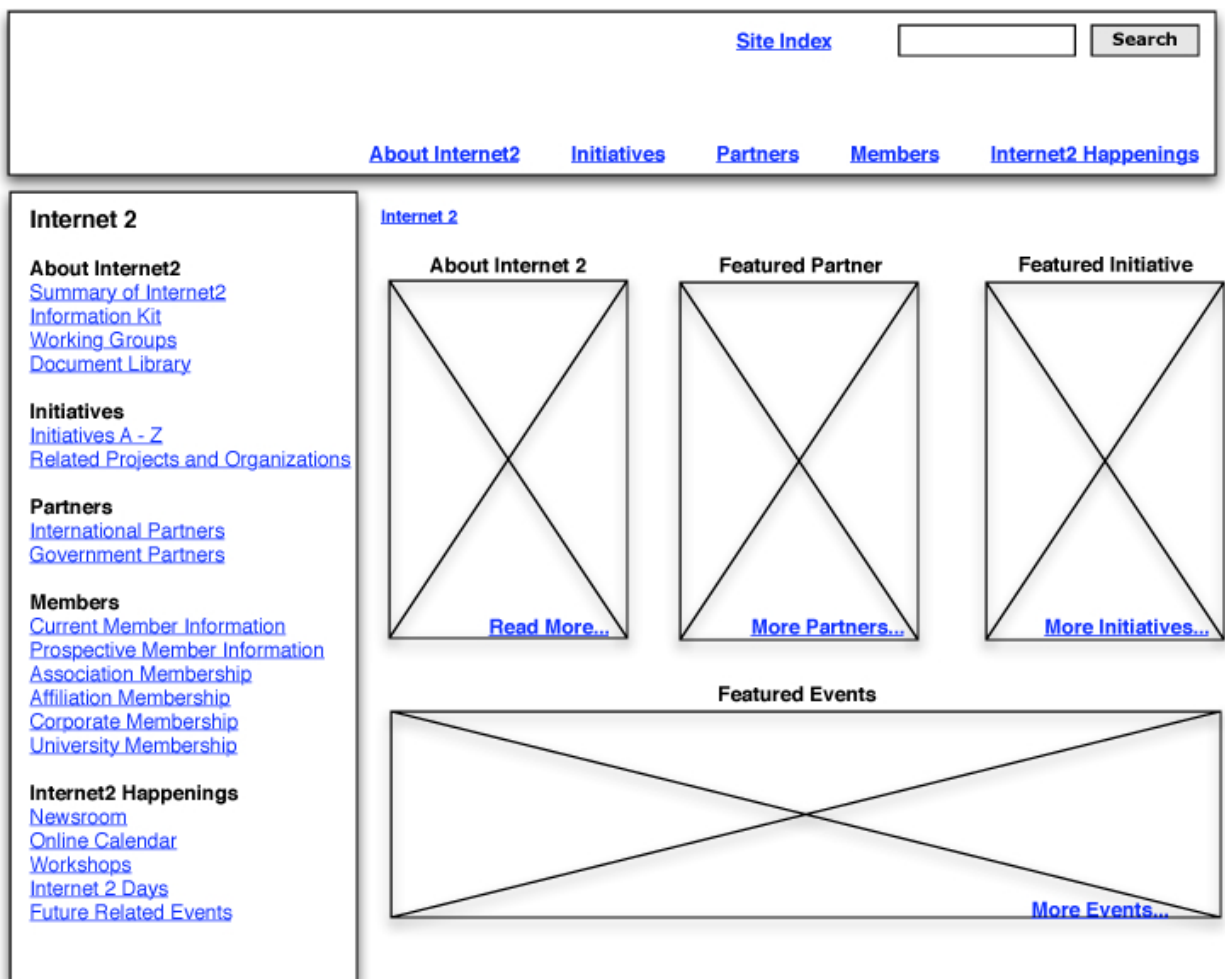


Figure 7. Wireframe of proposed index page.

Local Navigation

When any area is clicked on, the local navigation will be displayed in the left menu bar. In this example below, Figure 8, the List of Initiatives are displayed in the main section of the site, and supplemental information regarding the initiatives is divided by category in the local navigation.

Several of the links that were formerly part of the global navigation are now incorporated at the local level. Middleware, which is one particular initiative has been moved to the lists of Initiatives. Networks, a category of initiatives is shown as such in Figure 8. Security, which is an aspect of some of the initiatives but not others is included in the “about” section of the Initiatives description, and will also be included in the initiative sub-sites that pertain to it.

One limitation of this design is that initiatives that Internet2 considers the most prominent are not highlighted like they are currently on the home page. This could be remedied by including a “highlighted initiatives” section above the main listing.

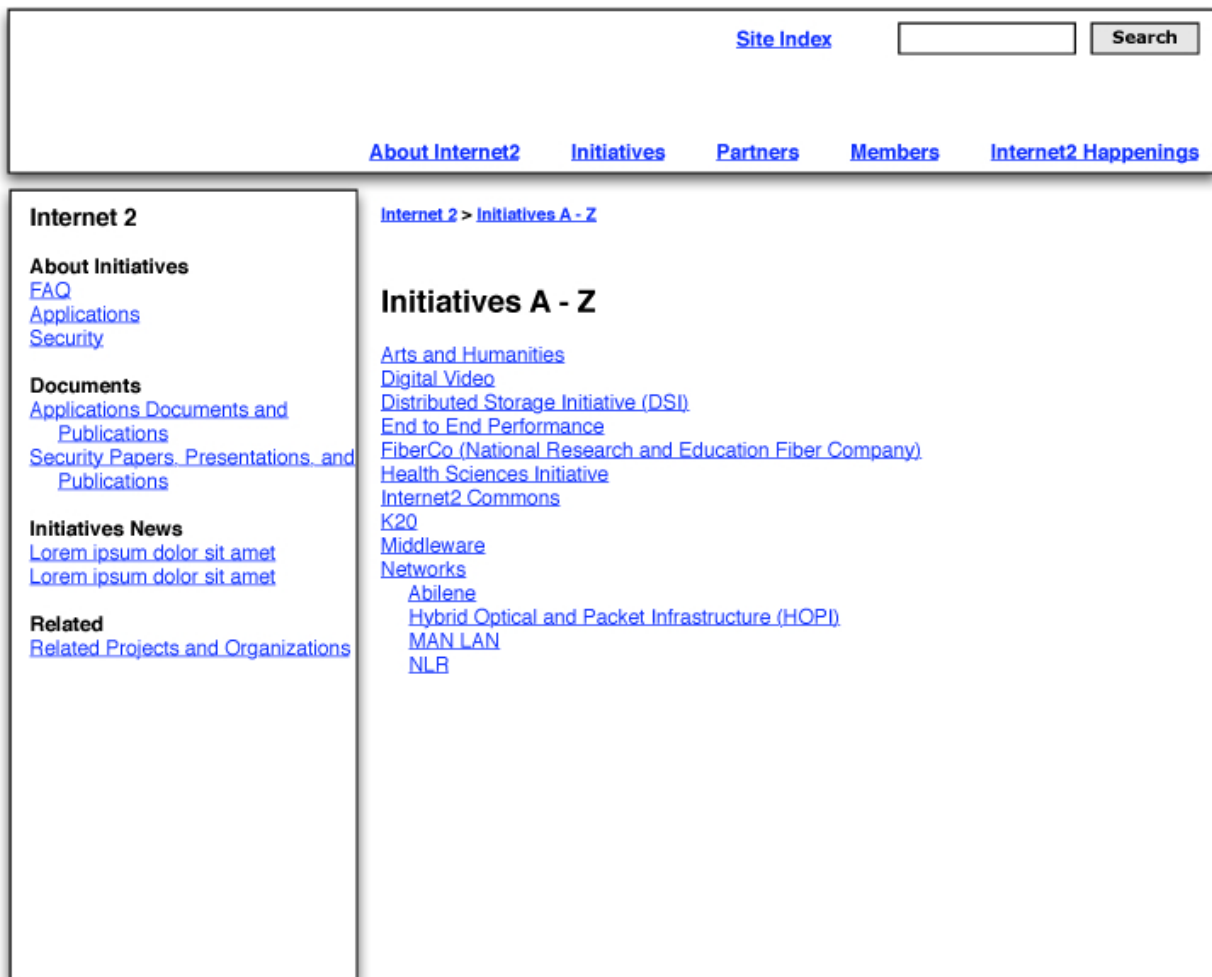


Figure 8. Wireframe of proposed local navigation and project listings.

Sub-Site Navigation (Initiative/Project Pages)

In the current site architecture, clicking on the names of some initiatives takes the user to a completely separate site, often with a different color scheme and lack of consistent global navigation. Because each sub-site is maintained by its own working group, each site has different navigational elements from each other and from the main Internet2 site.

We propose that each working group continue to be responsible for the content related to its initiative, but that they are required to adhere to a template. With this system, the global navigation will remain the same on each page of the site, the color scheme will remain the same, the project will be easily identified as belonging to Internet2, and each sub-site will retain the same local navigation categories as other sub-sites. Users looking for information on particular projects will not only be able to move around more efficiently, but will be able to anticipate the type of information available about each project.

A breadcrumb was added throughout all levels of navigation to inform the user of their location within the site. Figure 9 shows a wireframe of the proposed sub-site design.



Figure 9. Wireframe of proposed project sub-site.

Conclusions

Internet2 has a large, often overwhelming amount of information contained on the site. The top global navigation, which represented the old structure of the organization was confusing to users because the labels represented different types of information and categories.

We propose that the current top global navigation be dismantled and separated into the locations where it more appropriately applies to the information provided. The global navigation should be replaced with the five categories identified by the card sort. Additionally, we propose that one template be used throughout the site and for all project/initiative page sub-sites. This template will remain consistent in color and structure and have a bread-crumb present to show the user the path between the top level of the site and their current location. These changes will allow experienced and inexperienced users, employees, University members, and possible donors to all experience the site at a depth that facilitates their individual needs.