Looking through a Window on Open Source Culture: Lessons for Community Infrastructure Design

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ABSTRACT

Slashdot is a major virtual meeting ground for the Open Source development community. The discourse at Slashdot is interpreted in this study, and in combination with primary interviews and secondary archival analysis, yields rich insights about the signifying practices, contradictions, norms, incentive structures and values systems that characterize the community that it supports. The characteristics of the site such as the emphasis on collaboration to manage information, its distinctive interpellation, the reputation-maintenance mechanisms, use of Open Source tools, and adoption of norms such as "release early, release often" reflect the broader Open Source ideals. Using an ethnomethodology perspective, this study provides clear examples to recover what reflective members 'know' from their practical mastery in everyday affairs of the community. We find that the site taps into the emergent social construction of the community and effectively mediates that construction. It is proposed that Slashdot's success is derived from the skillful design that both reflects and supports Open Source practices and principles. The study offers important insights for organizations that are trying to nurture open-source communities for socially coordinated software development.

Key-words: Open Source, Virtual Community, Interpretive research, ISRL Categories: HA08, AI0802.

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RÉSUMÉ

Slashdot est un terrain majeur de rencontres virtuelles pour la communauté du développement du logiciel Libre. Cet article interprète le discours que l'on y trouve et, en combinaison avec des entretiens et des archives, permet de mieux comprendre la signification des pratiques, des normes, des structures d'incitation et des systèmes de valeurs qui caractérisent la communauté supportée par Slashdot. Les caractéristiques du site, telles que l'accent mis sur la collaboration dans l'administration des données, ses modes d'expression, les méthodes employées pour maintenir la réputation du site, l'utilisation des outils Libres et l'adoption de normes, telles que « livrer tôt et livrer souvent » reflètent les idéaux généraux du Libre. Utilisant une méthodologie de type ethnologique, cette étude fournit des exemples précis qui montrent l'étendue des connaissances pratiques des participants telles que les discussions qui se déroulent sur le site les révèlent. Nos observations indiquent que le site slashdot est un élément fondamental de la construction sociale de la communauté qu'il abrite et qu'il se pose en médiateur de cette construction. Nous formulons l'hypothèse que le succès de slashdot vient en grande partie du design de son site qui tout à la fois reflète et supporte les principes et les pratiques du Libre. Cette étude offre donc des conclusions importantes pour les organisations qui tentent de créer des communautés Libres pour développer des logiciels qui intègrent les idées d'une large communauté.

Mots-clés : Logiciels Libres, Communautés virtuelles, Recherche interprétiviste.

Anybody who ventures into Linux Country had best be wary, though. The group's penguin mascot may look cute, but this is a fractious culture with byzantine rules – many of them unwritten. Avoiding the wrath of the faithful is tricky. Business people must keep an eye on dozens of Web sites and e-mail interchanges that serve as the Open Source community's virtual town square – wild and woolly places like **www.slashdot.org**, *where adolescents seem to outnumber adults by 2 to 1. That's where they'll find out fast – like Coupland [Corel CEO] did – if their latest Linux move is brilliant or a blunder.*

The Wild and Woolly World of Linux
Business Week (November 15, 1999)

The Open Source movement is a source of puzzling contradictions as researchers try to unravel the basic motivations for Open Source development in the apparent absence of ownership rights, and seek to examine its implications for virtual organizing (Markus et al., 2000). At the same time a number of commercial software organizations (Sun, HP and IBM among others) have begun to cultivate open source communities to tap into the large globally distributed developer pool (see collabnet.com). However, there has been relatively little research into how to organize and support these virtual communities. This study tries to provide insights into the issue through a systematic study of one of the community's main meeting grounds – slashdot.org. Our analysis reveals that this site mediates the construction of the Open Source community in a way that is consistent with the values and practices of the community – even mirroring its contradictions. In the following section we present a background of the Open Source movement and outline important theoretical streams that have been used to analyze its practices. In section 2 we present the design of this study and the specific issues it seeks to explore. In section 3 we provide an introduction to the Slashdot web-site. In section 4 we outline the insights generated from our research and illustrate them with postings, showing the fertile context that we draw upon. We also present evidence based on direct interviews with community members. In section 5 we present some implications and in Section 6 we outline a theory to inform the design of infrastructure to support Open Source communities.

I. THE OPEN SOURCE MOVEMENT

Open Source refers to software that is freely distributable and one that may be modified and adapted as per the needs of individual users (www.opensource.org – lays down specific guidelines for an Open Source license). The Open Source movement is based on a collaborative approach to the development, testing and modification of software and has emerged as an alternative to traditional proprietary software development.

I.1. Prior Theoretical Understanding

In order to understand the Open Source community and its discourse it is important to conceptualize its theoretical basis. A number of (possibly complementary) theoretical approaches are evident. The basis of

Open Source development has been attributed to:

- A reputation game much akin to the world of academia;
- The motivation of the hacker subculture to shape the information ecologies;
- The existence of different consumer utilities for source code.

Eric Raymond (2000) suggests that hacker ownership customs reflect the Lockean theory of property rights. Just as land tenure rights are characterized by ownership acquired by homesteading, transfer of title and claiming through adverse possession, Open Source hackers observe the customs that they do in order to defend the expected return from their projects. Further, he observes that the hacker milieu of organizing is a gift culture made possible by an abundance of basic needs. The gift culture is characterized by a reputation game – reputation is an important reward for its own sake and also for its ability to attract attention and cooperation from others. Further, reputation may result in higher status and further rewards in an exchange or command economy. There are contextual factors in the Open Source culture that favor the reputation game. Software is a complex artifact that is difficult to objectively value. Thus, the success of a giver depends on the critical judgement of peers. Also, other ways of gaining in status are absent so the reputation game is the only game in this culture. Raymond suggests that the three taboos observed in the hacker culture are a means of maximizing reputation incentives. Forking of existing Open Source projects, distribution of rogue patches and surreptitiously removing someone's name from a project are frowned upon and these are essentially needed to ensure that the reputation-game incentives are maintained.

A second line of thinking suggests that the Open Source movement is an attempt to influence the realm of ideas about how software should be developed (Kuwabara, 2000). Memetics is a popular topic for speculation among hackers, who like to see themselves as architects of the new information ecologies in which memes live and replicate. A meme refers to an idea, behavior, style, or usage that spreads from person to person within a culture and competes for attention with other memes (Dawkins, 1989). The term, analogous to genes, represents a contagious information pattern that replicates by infecting human minds and altering their behavior, causing them to propagate the pattern. Mémetics is based on the vision of ideas as autonomous entities that move from brain to brain in the same way that viruses move between bodies, spreading, replicating and infecting the population of hosts. The hacker culture is collaborative and characterized by intense information exchange. Appreciation of memetics is perceived to be important because of two reasons – to understand how the icons, advertisement, logos, and packaged ideas result in an encoding that thwarts rationality and makes people believe things they do and behave in certain ways, and to be able to influence the information exchange and ideas towards communally derived ideals.

The motivations for an Open Source culture could also be explained by the

specific utility of a class of consumers for software. For these consumers software has a higher utility if it may be modified and adapted because of their own special needs as well as the technical ability to understand and modify such software. A common motivation cited in the community is the need to "scratch a personal itch". For consumers without this ability or differentiated needs, there is expected to be no marked difference between their utility for Open Source and proprietary software.

The different theoretical arguments for Open Source development presented here are used to generate an initial awareness of the forces that drive and shape Open Source practices. While the different arguments are not contradictory, each leads to distinct Open Source practices.

I.2. The Information Infrastructure

Open Source development needs a web of relationships supported by an open infrastructure that allow for coordinated development. The label "virtual community" is often applied to websites that support social interactions. According to Rheingold (1993) – "*virtual communities are social aggregations that emerge from the Net when enough people carry on those public discussions long enough, with sufficient human feeling, to form webs of personal relationships in cyberspace*". As noted by Erickson (1997), although virtual community "is an engaging and provocative notion, the concept of community is not always well-suited to describing on-line discourse". Calhoun (1991) similarly argues that the media's ability to broaden the range of our experiences creates the illusion of greater contact or membership in large-scale social organizations. On the other hand, Oldenburg (1989) argues that online communities may fill a need that has been all but abandoned in modern societies, with the Internet filling the need for the third sphere of conviviality supplementing the home and the workplace. As we shall see, the debate at Slashdot is divided between those who perceive that a "virtual" community is an oxymoron and those who believe that deep relationships can indeed be sustained in cyberspace. There is a significant group, however, who believe that the online and the physical worlds interpenetrate each other and information sharing supports the construction of real world communities.

Accordingly, we do not label Slashdot as a virtual community, but rather the microcosm of the larger Open Source community. The relationship of the community at large to its electronic microcosm is not uncontested. Star (1995) suggests that computers as communication media serve as a "house of mirrors" to designers and users – they may mirror work processes and facilitate them, but they may also reify informal and local understandings.

A growing body of literature has examined the influence of electronic media on communication (e.g. Markus, 1994; Fulk, 1993). Structuration theory (Giddens, 1984) has been used to explain the adoption of computing and information technologies, and suggests that technologies are structured by users in the context of their use (Poole and DeSanctis, 1990). Adaptive Structuration (DeSanctis and Poole, 1994) extends

structuration and considers mutual influence of technology and social processes – technology structures, such as the restrictiveness, sophistication and comprehensiveness of features as well as the general intent with regards to values and goals, task environment and group structures are important in shaping appropriation processes that in turn will shape emergent sources of structure. An important insight from this research has been that electronic communication may be classified into recognizable types or genre and these, both shape and are shaped by individuals' communicative actions (Yates & Orlikowski, 1992). A genre may be identified by its distinctive form such as linguistic features and a purpose that is constructed and recognized by the relevant community. More generally, genre refer to systems of orientation, conventions and expectations and offer a way to understand creative practices. Another important insight has been the role of discrepant events in the adaptation process that present occasions for restructuring (Tyre and Orlikowski, 1994).

II. RESEARCH DESIGN

II.1. Research Issues

This study aims to understand how an Open Source community can be supported through an IT infrastructure. It examines the information exchange in a microcosm of the community and explores the following:

1. *What are the patterns of interaction and signifying practices in the community and the unwritten norms and motivations that govern them?*
2. *How do the contradictions in the Open Source community, particularly the conflict between espoused goals and situational adaptations, shape community exchanges?*
3. *What are the characteristics of the design of the IT infrastructure that enable it to act as a vehicle for the community?*

The aim of this research is to understand the Open Source culture and produce theoretical insights that could better guide the creation of web-based infrastructures to support such communities. To do this, we also need to understand cultural constructs such as codes, ground rules, templates and structures that bear information about the community and are manifestations of its social knowledge.

II.2. Methodology

This is an interpretive study that uses a window provided by the Internet to look at the interactions in the community. In doing this, a conscious attempt was made to analyze both the usage and structuring of the medium, and the specific Open Source related attitudes they reflect and reify. A breadth-first approach was used to analyze the patterns of threads, and a depth-first approach was used to selectively dig deep into representative threads to examine content. An important consideration was to understand phenomena from the point of view of the participants and in their particular social setting. We start out with the assumption that reality is socially constructed and access to reality is through an understanding of social constructions such as language and shared refe-

rences or symbols. We do not start with a set of hypotheses but try to make sense of the full complexity of this community and its interactions. This research follows a critical approach to analysis by focusing on oppositions, conflicts and contradictions that arise in the context being examined.

Thomsen, Straubhaar and Bolyard (1998) propose a multi-method approach to the study of online communities that involves the use of text and discourse analysis, a prolonged commitment to involved participant observation, and the use of qualitative interviews with group members as a means of further teasing out the 'meanings' they ascribe to the experiences of membership and participation. Our research methodology follows their recommendation and strongly draws upon ethnomethodology. We concern ourselves with phenomena as they are encountered in local social settings. Ethnomethodology is not motivated by the aspiration to make discoveries about the nature of social phenomena but to undertake the 'recovery' of that which is already known – but is 'known' in the form of a competent mastery of practical affairs to members of society (Sharrock, 2001). A crucial assumption here is that ordinary people also function as sociological reasoners. In keeping with those guidelines we have tried to let the community speak for itself and tried to recover from their voices and conversations the specifics of their social setting.

We also follow guidelines suggested by Klein and Myers (1999) for qualitative studies. The hermeneutic circle suggests that all human understanding is achieved by iterating between considering the interdependent meaning of the parts and the whole that they form. In the spirit of this principle we have examined individual exchanges and tried to interpret their meaning with reference to the overall conflicts and contradictions that characterize this community, and also use the derived meanings to shape the overall perspective. In the same vein we have tried to place this microcosm in its appropriate social and historic context and look at how the community taps into other related communities and exchanges information with the broader Open Source community. The study has tried to retain sensitivity to possible biases on the part of the researchers, but in line with the interpretive nature of this work this is intended as a useful narrative presenting an interpretation of the reality and is part of a process of construction. In line with earlier research that seeks to make an epistemological shift privileging local and particular interactions over aggregations or averages we, adopted a set of guiding principles (Table 1) for our study (Gopal & Prasad, 2000).

III. WHAT IS SLASHDOT?

"What is obvious is the physicality of their presence – the physical sense that they left parts of their life strewn there like contents of a wallet or a desk drawer – a naïve mix of coherence and happenstance for a world to see"

Michael Joyce,
"Othermindedness", 2000

Slashdot (www.slashdot.org) is an interactive website organized in a weblog format. Founded in 1996, over

Research Stage	Guiding Principles	Activity
Research Design	Gain Familiarity with Context Relevance of different symbols	Assimilate narratives such as the Halloween Papers and Eric Raymond's writings Emphasize problematic elements
Archival Data Collection	Scope – identify broad themes and recurring patterns Depth – examine thread micro structure Emphasize contradictions evidenced in discourse	Analyze structure of complete thread Analyze themes for postings for one month period Sample posts reflecting signifying practices, concerns, contradictions
Secondary Data Analysis	Open coding of finding categories and identification of salient posts illustrating findings	Collect and code representative posts
Primary Data Collection	Unstructured data elicitation from members Capture the multiplicity of perspectives	Contact participants in multiple threads Follow-up interviews
Presentation of Findings	Thick description Present voice of respondents	Organize and revisit posts to generate insights

Table 1: Guiding Principles and Research Process.

time, it has become a high-traffic meeting place for Linux advocates and the Open Source movement. Visitors to the site are primarily software programmers, web site developers and other technology professionals and it averages about a million unique visits per month. The site focuses on providing news and provoking discussion on complex technology-related issues. The entire site is dynamically generated from a database and can be personalized by the user to view the type of content that she desires. Each day the site editors post a number of (mostly) one-paragraph introductions to a variety of topics. The topics could range from Open Source product releases, scientific breakthroughs or other topics of interest to a technology savvy audience. The introduction has online links to the stories as well as other related information that a reader could be interested in or could use to explore the topic. Various Slashdot contributors may also post columns on topics of interest or position statements on issues. Slashdot's information dissemination model is to provide concise summary statements with links to the in-depth information that interested readers may peruse. People around the world scour the Internet for interesting news, then post them on Slashdot in short, hyperlink-rich summaries to spark discussion. Visitors to the site create content by commenting on various news stories that are posted throughout the day. (Andover IPO, 1999).

III.1. Formative Incident

A formative incident in Slashdot's history was the coverage and readership it drew when Jon Katz, an author and media critic who writes for Slashdot, wrote a series of provocative articles following high-school shootings

in Colorado. He asked people not to go on a witch-hunt for supposed teenage misfits. The initial article drew a blizzard of e-mail describing the terrors of being different and not part of high-school cliques and he wrote several powerful essays decrying "a profoundly ignorant and unthinking response to a tragedy that left geeks, nerds, non-conformists and the alienated in an even worse situation than before". Quite evidently, the essays struck a chord in Slashdot's own community that has forged the basis of its identify as being non-conformist. Katz might actually be describing the Slashdot community in his column:

> *People who are different are reviled as geeks, nerds, dorks. The lucky ones are excluded, the unfortunates are harassed, humiliated, sometimes assaulted literally as well as socially. Odd values – unthinking school spirit, proms, jocks – are exalted, while the best values – free thinking, nonconformity, curiosity – are ridiculed. Maybe the one positive legacy the Trenchcoat Mafia left was to ensure that this message got heard, by a society that seems desperate not to hear it.*

III.2. The Interpellation – "News for Nerds or Stuff that Matters"

Interpellation refers to the point of recognition between a subject and ideological or signifying claims (Lacan, 1977). Just as an addressee to a "Hey, You there!" turns back, responds to the hail and takes on a role as if it was meant for her all along – ideology interpellates individuals by seeking them to recognize themselves in the call. Slashdot prominently bills itself as "News for Nerds or Stuff that Matters" and the site-name (for the Unix notation /.) reflects its ideology. This addresses the reader and invites them to take on the role of freethinking intellectuals. The interpellation is distinctively crafted – not only does it set out the role for the addressee, it also seeks to qualify the individual's interest. While a common interpretation of the nerd label might be pejorative, it takes on a different identity once it is asserted that this is stuff that matters.

IV. PRESENTATION OF INSIGHTS

In this paper we present a rich description of the discourse at Slashdot and try to place it in the context of the overall Open Source culture. In order to understand the patterns of exchanges in the community it was first necessary to uncover key tensions that characterize this context.

IV.1. Contradictions in the Open Source Development Model

The Open Source development mode is beset with a number of contradictions for organizations that wish to pursue the model and for individuals who have embraced its principles. There are, in particular, tensions between the need to support the Open Source community and exploit opportunities that increasing acceptance of OSD software brings. Here is some evidence coaxed from Slashdot and referenced links:

- The Open Source business model is characterized by "coopetition" – companies that distribute the operating system such as Red Hat and MandrakeSoft both benefit from the

same open-source community, but they compete for the customer;

- There is a tension between the need to disclose the source code and the need to protect competitive advantage. The representative of a driver software developer comments:

  Some companies still want to move to a 100-percent-open driver. But by opening our specifications, we are taking a risk that our competitors will figure out our technology.

- The need to creat+e a critical mass for Open Source products sometimes results in licenses for products created through such efforts to also allow for their use in closed source products. For example, the creator of zlib data compression utility adopted a license that also allows it to be used in closed-source products:

  This was an absolute requirement for the success of the PNG image format, which relies on zlib for data compression. If we had used a GPL license, Netscape and Microsoft Explorer wouldn't support PNG, and the PNG format would be dead by now. I also received 0$ for zlib, if you're curious... Even though I allowed my code to be used in closed-source products, I am a strong supporter of the open-source model. That's also why I work for MandrakeSoft. The open-source model is getting so much momentum that it will in the end dominate the software industry

- Companies need to balance between their commitment to the Open Source cause and the need to be able to use third party closed source software in their products. Corel CEO Dr. Cowpland on how his company is helping the Linux community:

  We have been doing work with Corel Linux in the GPL or Mozilla Open Source licenses. The Wine work that we are doing is being put back into the community. The Corel File Manager, all of which we wrote ourselves, has been put back into the community We are actually very supportive of the Open Source concept. On the applications side we don't see those as being Open Source because there are dozens and dozens of third party utilities that we select, tune-up and include. That's what makes very rich applications because the core software is only part of the source. It is the other utilities that make them useful. As we have to pay royalties for many of these, its impossible to give them free.

- Some companies have tried to incorporate some of the Open Source principles into their own products. Sun Microsystems has made the source code for its Java technology freely available under its Java Community Source License – but the company still keeps control over Java and charges fees when someone wants to ship a product. Its quasi-Open Source model has been perceived by some as a strategy to "taint" the pool of developers who want to create their own Java clones independent of Sun's licensing and royalty requirements. Sun's licensing model is similar to the one Netscape used when it made its Navigator Web browser source code available through the Mozilla project. The Mozilla public licensing model allows software developers to use the technology for their own purposes, but it requires them to channel technology improvements to the vendor for future versions of the tool.

- There is a tension between the need of Linux companies to differentiate their distributions from others to in-

crease userbase, while at the same time ensuring that incompatible versions of the core operating system are not created.

The commercial distributions of Linux are trying to achieve popularity by offering graphical installations and graphical admin tools to ease the passage for new users In itself this is a worthwhile goal, but each distribution has developed a different set of tools for administering the system If you are accustomed to using YAST to administer a SuSE Linux system, you may be baffled by Caldera's COAS or Red Hat's Linuxconf.

These contradictions imply that the Open Source community is beset with ongoing debate on various issues and, despite a shared ideology, the specific perspectives may show considerable variation. The community dynamics are interesting to observe because of these tensions that engender ongoing debates and passionate participation.

The quote at the start of this paper highlights the role that Slashdot has created for itself in the Open Source development community. It acts as the arena for debate on issues of importance to this community. Major announcements about Open Source efforts are often channeled through Slashdot to gauge the reaction of the community at large. Consider the fact that the announcement of a new release of the Open Source web server Apache was done by posting the announcement on Slashdot and then projecting it for the audience – a case of the virtual space supplanting the physical space.

Posted by jimjag on Friday March 10, @06 45PM
from the better-late-than-never dept.

At the closing ceremony at the ApacheCon 2000 conference in Orlando, FLA, the Apache Software Foundation announced the availability of an Apache 2.0 Alpha release. 2.0a offers a number of improvements over the 1.3 codebase, including support for threads and the inclusion of the Apache Portable Runtime (APR) library. 2.0a is being released in order to really kick development into high gear. Let the hacking begin!!

UPDATE And how, exactly, did the ASF announce 2.0a? By posting the news on Slashdot, projected on a viewscreen in front of the closing ceremony audience. A first!

Ironically, this announcement was seen by some Slashdot members as going against the norms of the OSD culture – not to highlight product releases. The unwritten Open Source rule of "release early, release often" demands that product releases be understated affairs as software is always in a state of development and flux. Also, there is a fair level of resentment within the community about vaporware – software that is announced much before it is ready for release to influence market expectations for taking advantage of positive feedback economies. The news that Slashdot brings to its readers not only informs but also is a periodic ritual that re-enacts the "reality". The conversation around the news stories changes or maintains the "reality".

IV.2. Slashdot and Language

The language of the discourse at Slashdot incorporates a number of computing terms and references from the Open Source movement. These references include products, personalities, technologies, archetypal licenses and

major projects. Over time the site has developed some of its own terminology:

When Slashdot posts a link to another Web site, the resulting surge in Internet traffic can swamp and even cripple that site, a phenomenon known as getting "slashdotted". In a recent incident a Las Vegas electronic engineer bought what was meant to be a closed Internet-access netpliance, tweaked a connector cable and turned it into a fully functional, Pentium-class PC. Next came the "Slashdot" effect. News of the hack spread at Slashdot and hundreds of participants began a furious discussion of the possibilities stemming from the simple modification. Ultimately the retailer ran out of the machine and was reported to have got "slashdotted" (Wired, 2000).

The site has also popularized the term "Anonymous Coward", a self-explanatory term for those who aren't willing to have their names attached to their opinions. This label makes the values professed by the community fairly explicit. For a reputation-game based system it becomes important to have ownership of ideas as well as critiques.

Occasionally the site will use references to software applications and programming constructs that only a developer could be aware of. For instance, in a reader poll, among the choices provided were Caldera && (VA || RH) and Caldera && !(VA || RH) – using symbols for logical operands that only programmers could decipher.

The electronic text requires greater mastery in the symbolic medium and the ability to interpret and articulate meaning. Zuboff (1988) suggests that pooling intellective know-how depends in large measure upon language – *"not as a minimalist vehicle in the consolidation of face-to-face interaction but as a precise vehicle for conveying explicit reasoning, often in the absence of action"*. The emergent vocabulary at Slashdot reflects the need to expand the richness of the communication channel and also serves as a barrier for entry of non-adherents.

IV.3. The "Slashdotters"

Most Slashdotters tend to be engaged with the general ideology of Open Source development, and, as a group, provide resources of shared knowledge and practices that the community draws upon. Typical threads at Slashdot will have comments that range from information-weak flames to pages of insightful thoughts. For instance, a simple request for pointers to Open Source relational database management systems resulted in reflective discussion on the complexities in database software, the merits and issues with existing offerings and a sharing of experiences on individual efforts to use Open Source software for projects.

The following post captures the profile that Slashdotters admire and aim to emulate – note the explicit portrayal of geek values. The post was in response to the report of the alluded person setting up a homegrown DSL service in a remote town:

> *Nominations For Geek Of The Year? (Score:5, Interesting)*
> *by Hrunting (hrunting@nospam.texas.net) on Wednesday April 05, @01:32AM EDT (#62)*

Are they taking nominations yet? I'm not saying that this guy would or even should win, but he definitely should be nominated. Let me outline why (gives me a chance to use that fancy <ol> sign, too)

1. Dedicated to his high-speed access

Not many people would go through the lengths to get DSL that this guy did, especially considering his telco did tell them that they were planning on rolling out DSL in the future (just not the near-enough future).

2. Dedicated to perfection

Most people would've stopped after getting the first connection and been like, "Whoop! I rule!" but this guy actually tested out more equipment because, well, damn, that first DSL connection wasn't good enough.

3. Donated efforts to local groups

Granted, it's part of his work, but he took his understanding to the public and got them up and running as well. A geek is not selfish, nor is he greedy.

4. Published

This is most important. A true geek feels the need to let everyone know not just that he did it, but how he did it, in the sort of detail that allows it to be repeated by one and all. Kudos to this dude. He gets a nod for a nomination for geek of the year Is there a beanie award for this? If not, there should be.

The Slashdot community strongly differentiates itself from the mainstream and detests the seeming lack of attention for the issues it deems important. In the following post the author suggests how the mainstream perceptions and use of the "hacker" term differ from the common connotation:

[b]cr]acker issue (Score:1)
by rlowe69 (rlowe69@hotmail.com) on Friday April 07, @10:23AM EDT (#57)
>"I'm a bit surprised that the lead article didn't split hairs about the whole [b]cr]acker thing."
I'm not.
The days of (hack == good) are over. More and more people are associating the term with the negative stigma the computer ignorant media has given it. Techs don't want to use this term because they may be risking offending an ignorant party (like their bosses).
We tried "cracker" out on the media, but it just didn't take "Hacker" has a better ring to it; with that attack-with-an-axe connotation that makes people shiver just at the sound of the word in a newspaper headline.
Although it's unfortunate these people are unaware of the origins of it, we just have to accept that and move on. The definition of a word is usually the one which is most commonly used, not necessarily the correct one
Of course, we'll still use it in our circles. It'll be our little "joke".:)
rL – 2000

Having billed itself as "News for Nerds", Slashdot is expected to be on the cutting edge in terms of currency of news or issues that it reports on. There is little tolerance among many members for stale information and it is often met with comments such as "Stop posting duplicate stories". Also, articles that are not challenging may be met with derisive comments. A movie review and some comments it drew are shown below. The comments range from those with low tolerance to non-current information to those that are deliberately sarcastic. It shows that some participants have a narrowly defined view about what Slashdot is about and may resent if it seems to stray from its perceived and espoused social identity.

Review: "Scream 3"
Posted by JonKatz on Tuesday February 29, @11:17AM

from the in-a-trilogy-anything-goes dept. "Scream 3" is a perfect send-off to a neat cinematic trilogy It's fun, creepy, and slightly pooped, IMHO. And you have to be a genius to guess the ending (which is not in any way given away here): Read more and post your own review..

Has Slashdot Been Hacked? (Score:1) by miniwookie (NEVER EMAIL) on Tuesday February 29, @11:21AM EDT (#3) I mean really a review of a film that's been out for more than month This isn't news for news, it doesn't matter. Its not a very good film. The only way this story should have run is if the site has been hacked.

Isn't this Off-topic? (Score:1) by Slak on Tuesday February 29, @11:22AM EDT (#5) What does Scream 3 have to do with News for Nerds? This is hardly Stuff That Matters.The only thing technological in the review was a brief mention of cell phones. Great, lets do an analysis of the evolution of cell phones using the Scream Trilogy as the data source... Suffering sucatash, won't somebody please moderate Jon Katz down!

/me blinks in amazement (Score:3, Insightful) by Enoch Root (elijah[at]hushmail[dot] com) on Tuesday February 29, @11:25AM EDT (#11) By god, Jon Katz managed to interpret Scream 3 as a vehicle for "our darkest fears of our techno-culture obsessed lives"! It's just a teenage slasher flick! Jon, your movie revieus are interesting They have nothing to do with geeks, but you have to realise movies don't have to be about us in order for us to enjoy them. It doesn't have to always rely on the dark turmoils of a society ravaged by techno-capitalist opportunists drowning the voices of the technological wizzes set to push humanity towards its next level of socio-economical nanotech greatness "Science is magic that works." – Kurt Vonnegut, Cat's Cradle

Good Grief. (Score:1) by Kid Zero (another@placeforasnidecomment.org) on Tuesday February 29, @11:27AM EDT (#15) It's a horror movie. I didn't feel the urge to see it. - - - - - Open Source, Closed Minds. This is Slashdot.

Recently, Slashdot announced that it was making personalized news headlines available to users on mobile devices (release at *http://www.andover.net/press_31.html*). Slashdot Founder Rob Malda is quoted as saying, only partly in jest:

> *For some strange reason, a lot of Slashdot readers carry mobile electronics and they seem to show sudden withdrawal symptoms when they get too far away from Slashdot for too long.*

A large proportion of Slashdot posts use humor and sarcasm to get their message across or to simply poke fun at the community. Posts that are funny are marked as such by moderators and are moderated up as well. The brand of humor used is often irreverent and provides a starkly different take on issues. The jokes may be sophisticated and be understood only by those that have been acculturated.

The site has its share of Microsoft-hating posters since Microsoft is perceived to be using its market power to thwart Open Source products that are considered to be superior. The identity of the Open Source movement partly rests on its contrast with proprietary development philosophy. This social identity, based on a system of categorizations by adherence to Open Source principles, may create and define an individual's own place in society. In response to the announcement of a

highly interactive as later messages tend to recount the relatedness of earlier messages (Rafaeli and Sudweeks, 1997); the discussions tend to be opinionated but mainly to the point; the participants tend to employ distinctive communication styles and assert their individuality through creative signatures.

The thread was initiated by a posting by an anonymous poster on an approach to security that involves luring potential "crackers" through a honeypot and watching over them to learn how to protect computer systems against attacks. The thread saw a number of messages dealing with the ethical and legal issues of this approach and whether it constituted entrapment. There were also a number of posts dealing with the technical issues of simulation and approaches described in computer security literature. Part of thread focused on the different interpretations of the terms hackers and crackers as used in the mainstream and the "hacker" community.

There were 265 responses to the main posting. Of these, 183 were rated at level 1 or more; 53 at level 2 or more, 19 at level 3 or more, 9 at level 4 or more and 5 at the highest level 5.

The following table shows the average characteristics for messages: Coded based on codebook adapted from Rafaeli and Sudweeks (1997).

Coding Category	Proportion of posts (%)
Anonymous?	15
To the Context	78
Self Disclosure?	31
Does message contain an opinion?	78
Does message contain a fact?	44
Does message contain an apology?	2
Does message contain a question/request	9
Does message contain call for action	13
Does message contain a challenge?	19
Does message contain attempt at humor?	9
Does message offer rich/unique information?	28
Use of colloquial language?	31
Icon for emotion?	9
Device for emotion?	17
Art, other than emotion	33
Quote from list?	43
Quote from other CMC?	15
Quote from non-CMC?	13
Reference to main post?	56
Reference to other posts?	83
Is there reference to how previous messages related to even earlier messages?	59
Introduce new topic?	19
Does message contain agreement/disagreement with persons or ides on the list?	57
Does message contain use of first-person plural pronouns about the group?	11
Directly address any persons on the list?	33
Agreement/disagreement with persons or ideas off the list?	19
"Flaming" nature the rhetorical tone?	13
Does message contain coarse language?	6
Does message attempt to calm or synthesize messages?	15
IIs there mention of status of author?	9
Stylized signature?	54
Does signature contain quotation?	37

Table 2: Anatomy of a Thread.

The discourse at Slashdot refers to various Open Source efforts, and Open Source developers jump into conversations about development priorities and raise other ideas. In the following post the contributor exhorts the Mozilla developers to respond to the expressed need for better control of cookies by browsers. Note the resources made available to the reader to be able to come up-to-speed on the topic.

Posted by jamie on Wednesday March 22, @01:05PM
from the cool-company-name dept.
No cookies with offsite GIFs: that's the privacy solution implemented by IDcide (take a moment to register the pun, OK, there ya go). ***Here's*** *technical background on offsite cookies;* ***here's*** *the CNN story;* ***here's*** *the software FAQ (it's only available for Windows/MSIE). If you're not sure why offsite cookies matter, you must read* ***this.*** *And, not to rain on IDcide's revenue model – their product does other stuff too – but why isn't offsite cookie rejection built into all browsers? Anyone from* ***Mozilla*** *want to talk about this?*

The Slashdot community acts as a catalyst for the incubation of new Open Source efforts. By bringing together a significant mass of people with interests in Open Source development it enables proposals to be critically evaluated and relevant knowledge to be aggregated:

What Is The State Of MIDI Support Under Linux?
Posted by Cliff on Saturday March 11, @10:26AM
from the musicians-want-free-too dept.
CodeShark asks: "I am 99% ready to completely wipe all Windows software from my machines, but the last 1% I need to do so is an effective MIDI system that includes: a multitrack midi sequencer, a sound librarian, and notation software (outputting the midi tracks to sheet music). I've tried searching via the Web with little luck, and am wondering what is out there/in development. I'd even be willing to pick up and/or start an Open Source project in this area myself, but I don't have a lot of knowledge of where to start Suggestions anyone?" I'm hoping that with all the newfound popularity, someone has already started exploring with Linux in music production.

A great deal of attention is devoted at Slashdot to the issue of intellectual property protection and patents. The following article attracted grudging respect for the innovativeness of the proposed technique, but given the memetic considerations, was reviled for the move to restrict the idea-space through a patent. Like a number of other posts it also seeks to galvanize support for the espoused communal goal.

Posted by Cliff on Friday March 10, @08:46AM
from the interesting-idea-bad-patent dept.
Alowishus asks: "A company called sevenval has an interesting, but obvious, use of Wildcard A-Records in the DNS to encode Web session management IDs in the hostname of the site. Interesting, because if you are using relative URLs on your site, you do not need to do anything (i.e. setting a cookie or appending GET parameters) after the initial redirect to maintain a user session. See www.fahrschulportal.de for an example. Sevenval is applying for a patent on this technique, and Kristian Kohntopp, the author of a PHP session management library, is looking for prior art. He would like to find uses of hostnames that encode state or session information. Has anyone seen this before? It's an exceptionally useful technique, and I'd hate to see its use restricted by another improper software patent".

Slashdot is an important forum for the community to evaluate and sanction

Open Source efforts and to make sure they reflect the espoused ideology. The community is particularly sensitive to forking and fragmentation issues. Here is a response to a Linux initiative:

Great! (Score:2, Interesting)
by spoonboy42 on Thursday March 09, @10:53PM EDT (#1)
Definately a good thing The embedded market, while potentially one of Linux's greatest strengths, also has the potential to be a fragmentation threat This sort of co-operation is an excellent safegaurd against forking. Hopefully, this will bring Lineo, Cygnus, and all the other embedded API players together before they move to far apart. BTW, it's the APIs I'm worried about, not the kernel. The interoperability of the core kernel across no less than 9 platforms has convinced me that Linus, Alan, and all the other kernel developers can do portability very well.

The Open Source community has been characterized as increasingly large, free-thinking, beholden-to-no-one, grass-roots community that stays in touch through email, IRC chats and Internet discussion sites like Slashdot (Shankland & Festa, 1999). But this is, by no means a cohesive group and also has detractors (see post below) who have been adversely affected by the impact of Linux as it affects industry. Detractors also carry a stereotyped image of the Open Source community as immature and undisciplined.

SGI Continues to plummet after adopting Linux (Score 1, Flamebait)
by Anonymous Coward on Thursday March 02, @10.33AM EDT (#20)
*As an irate IRIX user, let me tell you what is responsible for all of SGI's problems recently: a certain big fat penguin. While IRIX had advanced features that Linux users can only dream of, Linux has nothing to reccomend it to users. A few buggy desktop environments? A pretty window manager? Please. I can get those anywhere. Instead, it's the little things that I miss, such as support for mice with more than 3 buttons, or advanced virtual memory (which can often be stored on ram disks for better performence) When I was forced to switch to running Linux on my SGI, I soon found that nothing I had would run! How do they expect users to make the switch from a stable, open environment (in 3 years, IRIX has *never* crashed on me, but gcc dumps core all the time) to a buggy, hack-ridden kludge like Linux? Yeah, it's great that you let 16 year olds write your kernel drivers, but for me, I prefer leaving it up to the pros Think you can call that kid for tech support? Not after 11.00, that's his bedtime. Ever since SGI turned from a high-power workstation producer to a sleazy Lintel vendor, I have been continually disgusted with them. Why would I want a dinky beige box running some toy OS? Hell, I once wrote a dynamic linker for my TRS-80, and I'm thinking I could extend it to full POSIX support. When I do, don't expect any Open Source from me I prefer to actually eat occasionally, which I'm sure you'll understand once you leave your high schools or colleges and enter the real world.*

While a number of comments on Open Source issues tend to be self-congratulatory and lauding the increased recognition for Open Source software, there are critical voices that tend to reason with practical concerns:

What was the point of posting this, exactly? Just to say.. "Open Source is the best development method, and although it sometimes seems like the communication methods it forces developers to use can be a problem, actually they are really good, all hail Open Source.". It just seemed like an empty piece of propaganda Do we really need that?

No kidding. Give me a break. Anyone who truly believes the highest quality of software is open-source hasn't seen much outside

of the PC world. Reality flash! Some open-source software is great! Some (if not most) is better than closed source software made by amatuers. But IT IS NOT better quality wise than software produced by professionals who have a good team (including a QA staff). I'm all for open-source, but let's be realistic.

IV.6. The Medium is the Message

In this section, we point to some of the ways in which Slashdot ("the medium"), by virtue of its organization and technical roots staying close to the espoused principles, embodies the Open Source message rather than just being a carrier for the message.

Slashdot's user interface is challenging for the average user but may be empowering for its target audience of nerds and Open Source enthusiasts. These people are familiar with "pure" user interfaces such as the minimalist Unix/Linux command line and the emacs/vi editors. The community is really passionate about these interfaces that the ordinary user would find archaic and very difficult to learn. For example, the many different ways of viewing and sorting threaded discussions is quite difficult to understand by the uninitiated. For the power user, however, these interfaces support very high levels of productivity once the interface has been mastered. Interfaces deemed more user friendly tend not to support menu short cuts and other efficient and concise syntax that experienced users prefer. In this way slashdot's interface very much reflects its Open Source predilections. It also serves to keep the non-adherents and the dilettantes away.

The other characteristics of the interface reflecting the Open Source hacker ideas is simplicity in the layout with a focus on the content and the liberal use of links to other online material. A lot of commercial sites exist as closed systems in order to control user experience and make their sites stickier but Slashdot tends to liberally refer people to other sites and also allows user to view customized news and content from other sites. Slashdot's moderation system also creates a reputation-game kind of effect that is very similar to the reputation-game that creates incentive structures in OSD. In line with the challenging nature of the rest of Slashdot, the ability to filter out poorly rated comments is not turned on by default, so only diligent users who study the slightly confusing user interface will discover this feature. The moderation system doesn't delete anything, it just marks comments up or down down, so people can choose how much they want to read, or not read.

Slashdot, as a medium is a vehicle for its own message in its use of Open Source software such as the Linux operating system, MySQL database and the Apache server as the basic platforms for its site. Slash is the source code and database that was originally used to create Slashdot, and has now been released under the GNU General Public License for use and improvement. It is an Open Source/Free Software project in its own right but there are strong expectations by the users about Slashdot practicing what it preaches.

IV.7. Direct Evidence – Voices from the Community

We supplemented our data collection through in-depth interviews of Slashdot participants. Participants were contacted

via email based on their participation in threads on open source issues at Slashdot and the public availability of their email addresses. 114 members were contacted, 66 provided preliminary responses and seven were interviewed at length. Since there was a significant possibility of a bias, the preliminary responses were used to ensure a reasonable mix of ideological adherence. They were queried about their participation in online communities, participation at Slashdot, Slashdot design features, and adherence to Open Source ideals. Table 3 presents verbatim excerpts from interviews with Slashdot participants with varying degrees of enthusiasm for the Open Source ideology. Most participants were in agreement about the capabilities of the community infrastructure to support free exchange of ideas without censorship.

One respondent reflected on Slashdot as a carrier for memes:

Slashdot is the idea_lab. It is a classic think tank. It survives on multiplicity and articulation. The communities that create their own interest may last a while, but they will soon die if the idea behind them does not create thay interest. 2.) They must be self-sustaining out of need – The community will exist because it must exist. Slashdot is needed as a forum for doublethink. A land of swimming ideas...waiting to crawl from the soup into companies and other communities, burning issues, finger food. How would slashdot work if not for the credit received from good penmanship? Jon Katz is a perfect example of how personality is required for community. Whether I abhore him or revere him, his articles divulge his personality, his ideas and he acquires a stature albeit good or bad for me and only me. I do not exist for him until now, but for me he equates to community.

The role of shared ideology is key and the shared norms, beliefs and values of the Open Source ideology creates a strong glue that binds the participants at Slashdot:

I've been involved with LambdaMOO for almost 10 years now. It's a community in every (good and bad) sense of the word. We have popular "celebrities", cliques, politics, elected positions, we vote on policy (MOO-wide petitions, ballots). You just can't /do/ that on the Web. The Web is stateless, and every hack used to give it state is still just a hack. That said, I consider Slashdot a community. We have our own lingo, mythos, and prominent figures I'm not as involved here, but others certainly are, and know each other and their personalities.

Members tend to value the information that they receive largely due to the effectiveness of the moderation mechanisms.

I've gone back and searched for links on slashdot dozens of times. In fact, I was hunting for link at 3am this morning regarding Sun's spontanious rebooting Guess why I was awake at 3am? -(. Are we all (/. members) not part of a news site gone e-community. People on /. ask each other questions and (usually) value the responses they get. Seems to me that this callibre of respect could only be found in one of those mythical online communities.

The following response presents clear evidence of medium embodying the open-source message. The emphasis-added part shows how, for this respondent, Open Source is epitomized by open access.

Slashdot has a subtle, yet clear and distinct encouragement _toward_ quality which I rarely find on the Internet. And yet, there is no censorship! On Slashdot, I can look at every single message in an uncensored form if I choose to do so (Of

course, if someone posts copyrighted material, it must be removed). I am deeply interested in studying the wide range of human expressions which appear in a completely open discussion. Slashdot is where I find it. To discover a major site with the ability to put forth an entire discussion, relying on an open moderation structure to filter information for users who seek a 'lite' version, is amazing. I don't use filters. **It's what Open Source is all about to me: the ability to let anyone anywhere join in the conversation**. *There can be much to learn from people who haven't yet learned how to speak well. The first few times I posted to Slashdot, my comments were buried in the mass. Being eager for audience, I thought quite seriously about what I could do to truly participate, and realized that I needed to put forth some cogent, well-thought ideas. I did that, and lo and behold, people responded. So far, one comment pointed a thousand new hits to a friend's website, and another time, a person commented that I had submitted a better summary of the topic than Jon Katz, one of the Slashdot writers. That made me all the more excited to write better next time. By inspiring me to do better, Slashdot has definitely improved my ability to write. And that is not even their goal.*

Participation in Online Communities	**Participation at Slashdot**	**Slashdot Design Features**	**Open Source Adherence**
Respondent #1			
To learn new things. Online community sites often have latest news, different news than mass-media outlets like Tee Vee or Radio or Newspapers.	Because slashdot gets updated so often, I feel elite. I have info that others don't. To obtain non-standard viewpoints or slants on events. Tee Vee, Radio, and Newspapers basically promulgate a sort of "accepted" viewpoint on all events Slashdot allows some participation, both in terms of submitting stories, and commenting on them.	The headlines, the ability to change your preferences, and the moderation.	I run NetBSD on my home computer (even more obscure open source, Unix-like operating system than Linux). I offer source code to software I've written on my web page. I scorn Microsoft Products and marketing, and I avoid purchasing and using their products as much as possible, given that MSFT is, in law, a stifling monopoly.
Respondent #2			
The *only* web-based discussion site I participate in is Slashdot, because web-based discussions usually stink I'm on over 50 email lists, and sporadically follow two news groups But web-based chat is a PITA, and only /. is worth the trouble. Websites attract more bozos, and the quality of discourse is lower.	I joined because of the karma system, and BOY am I pissed about the karma cap It was like a debate tournament where people kept score. Now I can only lose karma, so I rarely post. I'm absolutely serious:	Karma/moderation. Being able to view threaded/highest scores first.	Completely undecided.

Participation in Online Communities	**Participation at Slashdot**	**Slashdot Design Features**	**Open Source Adherence**
The email lists I subscribe to (or run) have bozo filters of one sort or another.	I love debate, and I love having a really big audience, and I loved that score was kept I never trolled or whored (as normally conceived of); I always posted earnestly Slashdot was my favorite sport The demographic is worth it. /. isn't a "community", it's a *stage*. And part of what makes a show fun to go to is who all else is in the audience, and who is likely to go on.		
Respondent #3			
To hear news about areas that interest me, that are not ordinarily picked up by the mainstream media, and also to occasionally participate in the discussions	As far as I can tell, it is the open source discussion site with the most participation Note that this makes slashdot somewhat non-useful for its nominal reason, discussing open source Any discussion about Linux or Microsoft rapidly descends into oft-repeated flame wars and stereotypes. But it is a great site for discussion of the rest of the "news for nerds".	By far the best feature is the moderation and meta-moderation. The way you can pick flat or threaded views is nice The search feature is nice, as is the rough grouping of articles into categories. Submitting articles is easy also (even though every one I have ever submitted has been rejected)	Not much at all.
Respondent #4			
I am very careful in how I spend my time online I will explore a new discussion based on a real-live conversation with someone I respect or trust. This is a high standard; in order for me to hear about something on the Internet by word of mouth, it has to be pretty exciting whenever I heard about Slashdot, the person was excited about its discussion.	I've been in online discussion groups since 1988, and know them to be a way to learn tremendous amount of information quickly and have a lot of fun at the same time I actively sought out Slashdot when I recently got back into programming, because I wanted to be around a lot of programmers; to learn their skills, their faults, their passions, and their language	Slashdot has a subtle, yet clear and distinct encouragement _toward_ quality which I rarely find on the Internet. And yet, there is no censorship! On Slashdot, I can look at every single message in an uncensored form if I choose to do so.	Completely. Open Source is how I lived my life before I ever heard of Open Source, and to find it becoming a major philosophical movement is deeply fulfilling.

Participation in Online Communities	Participation at Slashdot	Slashdot Design Features	Open Source Adherence
Respondent #5			
I need to stay on top of technologies, emerging trends, issues (privacy, Security, export control, etc.) for my job. In addition to hearing about what "the media" has to say about any of the Above, I get the absolutely unpolished reaction of others in my field, and related and unrelated ones (fields that is).	These are technical people writing FOR technical people. There is more of a focus on what I need for my job, and more than enough OTHER stuff to keep it interesting. The mix of stories. All work and no play makes for a dull day indeed. Enough things I don't agree with or are interested in to make sure I'm exposed to something contrarian. That even happens in comments instead of stories. Rubbing elbows with my peers, even if it is in a very distant manner.	The moderating for one thing – I've seen it evolve over the years and it is really a very good system. The most pertinent stuff bubbles to the top. Of course, a lot of seemingly "pertinent" (but incorrect, misleading, etc.) information is pushed to the top too, but that just gets it criticized better. Customizing it's content, so you can ignore the stuff you aren't interested in if you want to. Customizing how it is presented, so you can look at all the chaff, or just the cream of the crop of comments. The irreverent attitude keeps it refreshing.	I believe in the ideology. Wholeheartedly. I work with Linux systems (have for several years now) and I've gotten one company project released back to the community.
Respondent #6			
I seek discussion and debate with informed individuals, and this remains the core purpose of the Internet itself.	Those people at Slashdot, those who can act with maturity, argue with foundation and create their own opinion, those specific to the original, if no longer, unique, world of Slashdot have come there to not merely to be moderated by those who, at best, only understand half of what was written, nor to provide humor for "anonymous cowards" that most likely need as much physical growth as their mental growth needs, but to discuss, openly, the topics I often consider of interest. Persons who truely understand the goals of Richard Stallman and Eric Raymond. Also, those who not merely understand, but, those few who can also apply these ideals to the world as its events unfold. This is why I come specifically to Slashdot.	Slashdot has only one thing, and this is that which is most important – that it is open. It allows the free exchange of the discussions which I have spoken of to occur. It allows anyone to contribute – to contribute not only posts and replies, but to contribute articles and even to the overall site design; yet, through all this, it ensures that those allowed to moderate, though still able to be anyone, are those who are best up for the task. With all of this free exchange from its users, Slashdot contributes not only a forum, news and even help, but the entire source code of the site is give freely to anyone who is interested in using it, either as a whole, or in part.	I consider the concept of open source very important, and asking me about it is of no minor request. Open source, in concept and community, proves itself a most powerful tool. In an open source community, a singular individual, with an idea and some skill, can create just as comprehensive of a project as a corporation, and, often at no financial cost or risk, have just as many people work towards its development.

Participation in Online Communities	Participation at Slashdot	Slashdot Design Features	Open Source Adherence
Respondent #7			
To connect with other people who share similar interests To learn new information about my fields of study/interest. namely, programming and web design: For entertainment For critical review For emotional suggestions	To learn new information about my fields of study/interest: namely, programming and web design To keep abreast of important things going on in the world and because the readers of Slashdot are very informed and their comments on the stories usually are very enlightening.	The ability to have a "sort by rating" saved preference.	I believe in it wholeheartedly I have spent a lot of time and resources trying to get my employers to employ open source techniques.

Table 3: Slashdot Participant Responses.

The comments from Slashdot participants presented in Table 3 confirm the diversity of viewpoints that exist in the Open Source community, and the ability of the infrastructure to allow these viewpoints to be expressed in a free and open manner in line with community ideals.

V. IMPLICATIONS

Sites like Slashdot are shaping a new future for journalism – one that combines the role of integration that mass media have traditionally played, and the new platform for interaction. The discourse that it supports is an important component of its coverage of news events. It supports a communal interpretation of events and has been conceptualized as an actualization of Habermas's public sphere (Baoill, 2000). As a medium, Slashdot succeeds through its complete conviction in the Open Source message. It not only uses Open Source software as the basis for the site and redistributes its code, but also implements the Open Source collaborative principles by producing a viable coordination model based on a few key people planting the seeds of discussion and reputation-based incentives that spur lively conversations among a broad audience.

V.1. Open Source Symptomatic of Social Change

This paper pointed to some of the contradictions in the Open Source community and its microcosm that Slashdot represents. Clearly, the community is trying to balance its ideological commitments and its freewheeling entrepreneurial zeal. The Open Source community is a culture of hackers; for many of them Open Source code is a religious issue. It remains to be seen how these people will respond as Open Source code becomes more commercial and if there is a backlash. Barbrook and Cameron (2000) have coined the term "Californian ideology" for a social phenomenon at a larger scale referring to the bizarre fusion of the cultural bohemianism of San Francisco with the hi-tech industries of Silicon Valley. The Open Source commu-

nity seems to closely reflect some of the same contradictory elements fused together. A universal belief in technological determinism and the emancipatory power of new technologies is combined with the freedoms of hippie artisanship. In place of the collective freedom sought by the hippie radicals, however, they now champion the liberty of individuals within the marketplace.

VI. A THEORY FOR COMMUNITY INFRASTRUCTURE DESIGN – MEDIATED CONSTRUCTION THEORY

This study provides theoretical insights that can be used to inform the design of infrastructures to support open source communities. We propose that a community exists as a social construction based on interactions among individuals (Figure 2). A community infrastructure can be successfully designed by legitimately mediating, elaborating and reproducing that construction (Figure 3).

A central idea in cultural psychology is that structures viewed as internal to the individual by classical psychology need to be reconceptualized as distributed and existing in different media between and among individuals – cognition is stretched across mind, body, activity and setting. (Lave, 1988). There is a dialectical relationship between a culture or a social group and individuals with each mutually influencing the other. The theory of social representations was proposed by Moscovici (1984) in his study of the assimilation of psychoanalysis into 1950s French society. This is based on Durkheim's concept of collective representation. Social representation implies a set of concepts, statements and explanations originating in everyday life in the course of inter-individual interactions. Social representation is composed of two processes – an 'anchoring' in which the unfamiliar is assimilated into familiar categories of everyday cognition, and an objectification through which abstract representations are transformed into a concrete object achieving independence from the original milieu and becoming accepted as a 'conventional' reality. In case of the Open Source movement evangelists such as Eric Raymond have provided metaphors such as the "cathedral" and "bazaar" to objectify the complex phenomena of Open Source and closed source development. In additional pithy principles such as "release early, release often" have been devised as norms for Open Source development.

Given the idea of social representation, and social constructivism we can provide direction to the building of infrastructure around which communities may coalesce. The Slashdot infrastructure supports the Open Source community through restrictions on design that aim to maximize its utility for community members, through incentive structures that support community structures and content that the community is interested in. Agency and socializing patterns play as much of a role as does technology in structuring the community. The idea of the community in itself is a social construction. The designers tap at the basis of that construction. What are the symbols,

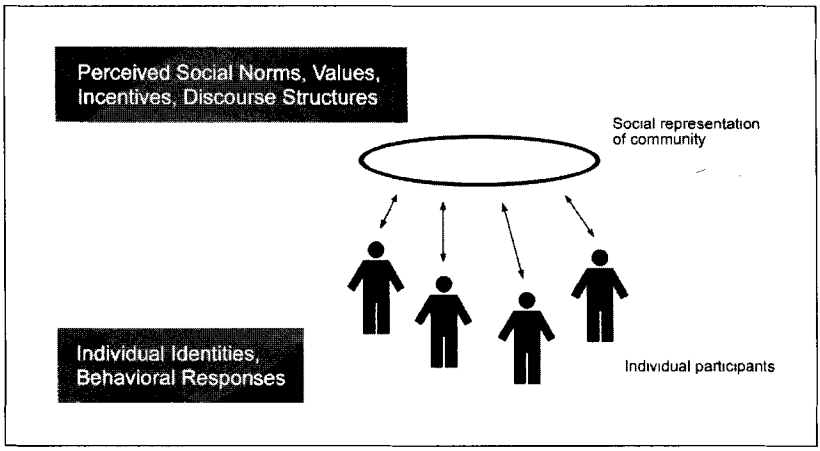

Figure 2: Social Construction of Open Source Community.

phraseology and norms that underlie that construction? This could be answered by studying discourse in the natural setting and then trying to effectively support it in the microcosm that the IT artifact generates.

The idea of the Open Source community is socially constructed by individuals who come to share a set of norms, incentives and discourse structures. The participants in the community have their own set of individual identities and behavioral responses. The identities are provided, negotiated and reinforced in the social setting. Over time, the individual and the social mutually reconstitute each other. For instance, social norms would get structured by individual behavior and in turn individual behavior would get structured by social norms. The social construction is a result of similar schemata that individuals use to interpret their experiences in a common part of their world.

Slashdot skillfully taps into the social representations of the Open Source community and tries to facilitate a similar social construction. It shapes the conditions in which particular practices may be realized. Slashdot is designed to provide support for community incen-

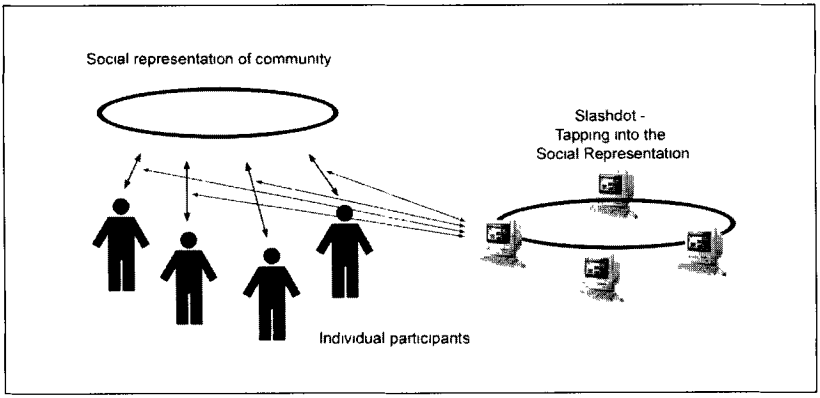

Figure 3: Slashdot's Mediation of Open Source Community.

tives through the reputation manager, it supports values such as free speech, freedom to innovate and need to keep the realm of ideas free of squatters. The process of tapping is not one-way. As Slashdot gains in participation and acceptance it feeds back into the social representation process and impacts the reconstruction of the community. The structural design and community participation both converge to legitimize and uphold a specific construction. The success of Slashdot may be attributed to the reinforcing nature of the feedback. It has tried to be a true reflection of community norms, values and discourse structure. It might not be a mere coincidence that it has followed the greater open community into commercialism and greater mainstream appeal. As such, it has been characterized by contradictions such as the need to balance its bohemian and entrepreneurial elements.

Yates, Orlikowski & Okamura (1999) found two contrasting patterns of use of community-wide communication genres reflecting explicit versus implicit structuring. Explicit structuring involves planned replication, planned modification and opportunistic modification of existing genres while implicit structuring is based on migration and variation of existing genre due to selection and enactment in everyday use. Slashdot took on implicit organizing structures from the Open Source community that had evolved over a period of time and explicitly made them the basis of organizing the electronically mediated microcosm.

VII. DISCUSSION

Table 4 presents our findings for the three research questions we started out with. The major contribution of this study is in uncovering voices from the Open Source community that present a richly textured narrative of community interactions and the role of Slashdot is supporting them. Our findings suggest that (a) social reputations are an important incentive mechanism motivating voluntary contributions both at Slashdot and in the larger community, (b) This is a fractious community characterized by differing perspectives on the Open Source philosophy, and (c) Slashdot's effectiveness stems from a successful reification of signifying Open Source practices.

Open source (OS) software, such as Linux, has generated attention in academic circles (e.g., Feller & Fitzgerald, 2000) and in the practitioner press (e.g., Tapscott and Ticoll, 2000). It has also been proposed that the patterns of Open Source organizing may be appropriate for future organizing arrangements (Markus, Manville, and Agres, 2000). This study presents a rich description of this community at work and play on its foremost staging area. It offers a theory and useful insights for designing platforms to support other similar communities – insights that are complementary to those derived from other theoretical lenses (e.g. Nambisan, 2002).

The accounts of Raymond (1999, 2000) and others (e.g. Himanen et al., 2001) ascribe ubiquitous values to the hacker community – promoting passionate and freely rhythmed work, the belief that individuals can create great things by joining forces in imaginative ways, among others. This study provides a more nuanced appraisal suggesting that there are also contradictions that may actually become more pronounced and significant over time.

Signifying practices in the community and the unwritten norms and motivations that govern them	**Contradictions in the Open Source community shaping community exchanges**	**Characteristics of the design of the IT infrastructure that enable it to act as a vehicle for the community**
Reputation maintenance requires social norms such as: Strong taboo against forking projects Distributing changes without cooperation of moderators frowned upon Removing a person's name from project history, credits or maintainers list is not done without explicit consent **Reputation maintenance needs promote values such as:** You don't become a hacker by calling yourself a hacker – you become a hacker when other hackers call you a hacker Non-trivial extensions of function are better than low-level patches and debugging Work that makes it into a big distribution is better than work that doesn't	Differing adherence to Open Source ideals Multiplicity of Open Source licences Often acrimonious exchanges pitting different perspectives Occasional departures from open-source ideals Sub-cultures that thrive beneath the surface More reflective participants recognize the contradictions in the Open Source community as it seeks to position Open Source development as being economically viable	The use of Open Source tools and distribution of slash source code Complex site that reflects the "nerd" mentality – *process complexity and deal with it* Collaborate to produce and control information Pressure to follow Open Source norms – "release early, release often" Extension of Open Source culture – erudite posts to get recognition among peers Ecology of communities linked together... sub-cultures connected

Table 4: Summary of Findings.

In order to evaluate interpretive research findings, earlier studies have proposed an evaluation on the basis of triangulation, authenticity of claims, breakdown resolution and replication (Trauth & Jessup, 2000). In this study the authors have triangulated the evidence from conversation archives with direct elicitation from member participants. Details of the research process have also been presented to enable an evaluation to be made. Finally, this study has tried to present a thick description that uncovers the voices of the community members without abstracting them from their context. Based on these it is hoped that the reader will be able to adequately judge the appropriateness of the findings.

VII.1. Limitations of the Study

The study is limited by its examination of the Open Source community and its exchanges in a single web-based platform over a limited period of time. These results need to be substantiated and generalized through intensive study of other fertile communities. It is hoped that the snippets in the text do provide an indication of the richness of the discourse, but there is obviously some subjectivity in the choice of material that is highlighted.

Given, the sheer volume of posts and the decision to eschew aggregation our interpretation may not capture the complete complexity of the phenomena we seek to present.

VIII. CONCLUSION

This study of the discourse at Slashdot provides rich insights into the Open Source culture and also provides implications for other efforts to support existing communities that primarily draw on physical media and limited face-to-face interactions for their construction. Slashdot's case suggests that for initial acceptance it may be important to tap into the basis of that construction and mirror it in the electronic infrastructure design. Without a close similarity between the previous social representation and that supported by the new medium, existing schemata that individuals use to interpret their exchanges referent to the community might be insufficient and cause dissonance, thereby undermining the legitimacy of the infrastructure.

The Open Source model is a unique way of producing software but it would not have the identity or meaning it does without reference to the traditions or practices that result in its creation. The Open Source culture has developed an identity in response to the mainstream proprietary source culture. Part of the enthusiasm for Open Source ideas comes from opposition to conventional thinking. This has drawn for it adherents in the hacker community. There is a sense of being different that is emphasized by the differences in norms and language and the acculturation needed to become a contributing member of this community. Slashdot is reflective of the community, in that it is structured with the same open norms in mind.

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