Unveiling and Engaging with the Humans of Networking Research

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Abstract

Networking research often abstracts away the people who build, operate, and experience the Internet. Yet, human decisions shape what gets measured, which problems are prioritized, and how solutions are deployed. This paper argues that such human influence is foundational and deserves methodological attention. To do so, we discuss three well-known qualitative methods and approaches: participatory action research, ethnographic methods, and positionality as concrete ways of engaging with the social and operational realities that underlie technical systems. These approaches formalize processes that are commonly implicit in networking research, help surface questions that cannot be answered with traces alone, and make space for voices often left out of the research pipeline or are inadvertently concealed due to the lack of formal procedures to include them in our research methods. Ultimately, we argue for a broader understanding of legitimate, and sometimes informal, contributions to networking research—one that better reflects the human element of how the Internet is structured and is experienced.

CCS Concepts

• **Human-centered computing** → *Collaborative and social computing systems and tools*; • **Networks** → *Network design principles*.

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1 Introduction

There is a growing misalignment between how we study the Internet and how the Internet actually works. As network researchers, we are trained to model, measure, and formalize. We analyze protocol behaviors, trace packet flows, and derive structure from logs and data traces. But the Internet itself resists clean abstraction. It is not merely a system of routers and protocols but a living infrastructure, shaped by economic constraints, operational habits, people, and socio-political entanglements. Networks are not just engineered; they are operated. And they are experienced.

Our research methods increasingly emphasize scale and automation: more measurements, more vantage points, more inferences. Yet in doing so, we are optimizing for observability over understanding, that is, we see what can be measured, but not always what matters. And behind every dataset and every measurement lies a set of human decisions: which networks get instrumented, which failures are investigated, which problems are deemed "interesting." Despite their clear importance, these human influences are often invisible in our papers. We rarely name the conversations that shaped a research agenda or describe the contexts in which operational insights emerged. But they are there. Behind the clean

diagrams and benchmarks lies a messier reality, one in which the contours of research are shaped by people.

Beyond obscuring the operation of networks, ignoring these actors dramatically limits the scope of networking research. Existing agendas tend to reflect the views of those who are most easily reachable—researchers with the right affiliations, invitations, and implicit credibility. The problems that surface through these channels tend to align with the priorities of large moneyed interests, such as hyperscalers or government agencies. As a result, the concerns that enter our research pipeline often mirror the operational realities of dominant players, leaving little room for the voices of those managing fragile last-mile networks, coping with unstable regulatory environments and innovating under constraints. Entire classes of challenges—those shaped by economic precarity, infrastructural instability, or linguistic and geopolitical marginality—are rendered invisible, because the people experiencing them are not in the room and their voice unheard. If networking research is to serve the global and deeply human system that the Internet has become, it must broaden not just who it studies, but who it listens to.

This narrowness is not just an artifact of who participates in networking research but is embedded in how the field defines itself. Work that foregrounds human experience, institutional context, or questions of governance is often treated as peripheral, as if it belongs in another venue or discipline altogether, or just to be viewed in hindsight once the technology story has played out. But that reflex of exclusion is precisely what this paper seeks to challenge. Our aim is not to move these conversations elsewhere, but to widen the scope of what counts as networking research. The people we hope to reach with this work are its everyday researchers: those who build systems, analyze traces, and publish at technical networking conferences. These researchers already make countless judgment calls—about which datasets to use, which problems to prioritize, which results to emphasize—that implicitly encode values and assumptions about what matters. By making these dimensions explicit and encouraging their use in networking venues, we argue for agency within the discipline to decide collectively what kinds of problems, methods, and voices belong under the banner of "networking."

Our central argument is that these human insights should no longer be treated as background noise, informal scaffolding, or insights for other disciplines. Instead, they should be approached with the same care and interest that we apply to packet loss or latency distributions. Rather than hiding behind a veneer of technical rigor, we should formalize these practices: making them visible and reproducible to our research community. Luckily, there is a long history of researchers who engage deeply with the human elements of technology. We derive our recommendations from bodies of work in the Science and Technology Studies (STS) and Human-Computer Interaction (HCI) spaces, each of which frequently engages with human-centered studies and the ethical collection of data [25]. In particular, we discuss three research tools that have been impactful in our own work: (1) Participatory Action Research, (2) Ethnographic Methods, and (3) Positionality, and describe examples of our use of them in networking research.

Ultimately, this paper is a call for a broader epistemology of Internet research—one that does not reduce the Internet to what is easy to measure, but expands our lens to include what is meaningful to those who operate and experience it. We are not arguing against automation, inference, or large-scale measurement (these are great!). Rather, we argue that these methods must be complemented by approaches that center the human. Because the future of networking depends not only on what our systems do, but on what people need them to do, and how these people perceive, shape, and respond to the network's behavior.

By unveiling and engaging with the humans that pave the Internet, we expand the scope of networking research to conduct more thorough, holistic, and ultimately correct investigations and explorations of this area we all love.

2 Participatory Methods and Action Research

We begin with a discussion on how we, as researchers, source (and describe the process of sourcing) research problems from practitioners and community members. Action Research (AR) and it's associated method Participatory Action Research (PAR), are umbrella terms that refer to a broad range of collaborative research approaches that hold social transformation as an ultimate goal [31].

Across the many different approaches to AR/PAR, there are consistent principles and characteristics. A key element most researchers agree on is that AR/PAR projects should strive for **full and active participation of individuals or communities at all levels,** from scoping initial research questions through to the publication of research results. This manifests as (1) participant engagement throughout the research process, including problem formation, (2) actively developing solutions to the problems identified by the community, and (3) iterative design of solutions with community members to continue to elicit feedback on both the problem and solution. The ultimate goal of AR/PAR projects should be social transformation of some kind, solving problems that have been identified by the participants of a project.

AR/PAR are often contrasted with forms of research that emphasize researcher detachment or objectivity. In our opinion, it stands in sharp contrast to traditional networking

research, where projects often begin with datasets, using measurements to identify anomalies or patterns, and only afterward attempt to infer user experiences or needs [26, 42]. AR/PAR inverts this model; it starts with people and their lived realities and uses data or technical tools in service of their priorities. This shift, from data-driven to community-driven inquiry, is both methodological and philosophical.

Despite these consistent focuses on partnerships, social impact, and engagement throughout the research endeavor, the types of action, levels of participation, and types of methods used can vary tremendously across different AR/PAR projects. Successful PAR emphasizes continual reflection on goals and power dynamics rather than enforcing uniform participation.

AR/PAR are widely regarded within the social sciences as a particularly empowering approach to research, and their use has spread to many disciplines and organizations. Scholars have also developed a number of ethical principles and frameworks to help PAR projects achieve their full potential in democratizing the research process [35].

Unveiling PAR — The Internet: The field of Networking, as defined in the Internet era, was largely born of a set of specific needs by key stakeholders, notably DARPA and the NSF, in their investment in the development of packet switched networks and associated technologies. While their goals do not fit cleanly into "positive social outcomes", many individual stakeholders additionally agitated for a more distributed, resilient architecture as both technically correct and a "social good" when compared to the monopolistic networking forces of the day (e.g, Bell Labs).

Starting in the 1960s, these forces began to win. Innovations in packet switching showed that an alternative network architecture could be possible, but incumbent monopoly players were not eager to so dramatically reimagine the network. This shift, from "foundational" packetization research to applied (e.g., "action") networking research informed by partners in support of a "social good", created a dramatic change in the work happening in universities. Significant operational code, including basic routing, services such as email [6], and even operating systems [10] became central to academic research. Universities ran their own networks, on their own operating systems, interconnected, and were the backbone of the ARPANet (and eventually NSFNet). This research shifted to become iterative and practical, with innovations such as congestion control algorithms (e.g., TCP Tahoe) being relatively small extensions over existing designs and deployed first into the Internet. This work continued hand-in-hand with the development of paired governance organizations such as the Internet Engineering Task Force (IETF) and Internet Research Task Force (IRTF) who took research to practice and provided a meeting ground for continued practitioner/researcher engagement, in line with our advocacy for action research. Additionally, we know what would have happened without these use-focused "action" methods: the closed, rigid, and monopolistic 2G cellular world that was developed in parallel by industry.

While the allegory between the Internet's growth and PAR is not an exact fit (mostly on your definition of "social good"), we wish to emphasize our shared history in these styles of methods: working with partners to identify problems and implement and iterate solutions. This already exists in the networking community, notably the "operational systems" tracks, but is not formalized or centered. Indeed, some of the authors have received guidance to reduce their engagement at the IETF/IRTF as they are not "research" venues. Recentering partners in networking research would emphasize the importance and challenges of this style of research.

3 Ethnographic Methods

Ethnographic methods are a helpful tool allowing for the collection of individual lived data from the people of networks: researchers, operators, and users and can provide a provide a different perspective through which we can understand problems – a perspective from below.

Grounded in anthropology and applied in different areas of the humanities and social sciences, ethnography is a method that centers on the relationship between the researcher and the collaborators that are part of the research fieldwork. Differently from PAR, it does not necessarily focus on social change. but ethnography's main goal is to understand social realities from the standpoint of the people that are part of it – which can ultimately lead to social change. It often integrates in-depth interviews and participatory observation in longitudinal research with the purpose of addressing multifaceted questions within a specific social environment. Research may involve traveling, visiting infrastructure, observing day-to-day activities, etc. always counting on the collaboration and consent of people, from local communities to computers scientists and engineers in their working environments. Ethnography is an inductive approach, a bottom-up way of doing research. This differs from deductive approaches, which have theories as a starting point to derive hypotheses that will guide how to run the data available in order to confirm or refute the initial assumptions. Nevertheless, one can say that "Like the systems engineer, the avid ethnographer also deploys a type of 'systems thinking' as they set out to their field sites or when they return from their sites to theorize what they have seen ([4] p. 258).

While traditional ethnography are time-consuming affairs, recent work has reconsidered how field engagement

can adapt to limited time and resources. Patchwork ethnography [17] emerged as a way to sustain depth and reflexivity even when researchers cannot remain continuously in the field. And while it is already known that "Good anthropology will always take time," authors agree that there is "no reason for concluding that the time it takes must in every case be spent in its bulk in a physical fieldsite" [14, 36]. An additional method that could fit is industry-led "rapid ethnography" [46], which prioritizes speed for product cycles; its goal is to preserve research quality amid practical constraints. Ethnographic networking research may involve spending some time in a company doing interviews, going consistently to an industry event to conduct observations, or participating in deployments of infrastructure. Although humanities and social sciences networking researchers can adhere to ethnographic methods more easily, engineering researchers may notice the need for this kind of method when available data fall short in explaining a problem. Partnership with ethnographers at different stages of a study is also possible.

Unveiling ethnography — IXPs: Network researchers have used ethnography in STS to interrogate how policy and peering politics affect networking. One study shows how an IXP can be a good idea on paper but end up being a dysfunctional infrastructure in markets with low competition [38]. Telmex, an incumbent in Mexico, used their BGP knowledge to circumvent regulations requiring mandatory peering in IXPs in the country. Playing with different ASNs and arguing that they were responding to the law, this case study shows the difficulties of regulating peering by law [38] and the limitations of protocoling. A parallel study comparing IXPs in Brazil and Germany further illustrates how political and infrastructural asymmetries shape interconnection. Despite more than 35 local IXPs, many Brazilian ISPs still connect in Europe. Ethnographic fieldwork combining interviews, routing data, and infrastructure observation shows that large IXPs such as DE-CIX in Frankfurt have benefited from the limited public points of presence of big tech in the Global South, attracting international traffic and becoming giant Internet nodes [39]. These findings reveal how the purpose of some IXPs has shifted from keeping traffic local to maximizing connectivity and influence. More than just uncovering current phenomena, researchers defend that ethnography is "not about 'getting the facts on the ground' or finding out 'what's really going on'" ([30] p. 169), but instead, it is a way of formulating better theories, taking into consideration the lived experiences of people [30]. In this way, research as the one above inspires conceptualizations of networking that account for the behavior of IXPs whose main goal is to attract more connections, independent of where they come from. In interviews with ISPs in the global South, it is clear that these giant IXPs become alternatives to Tier 1 [39].

Computer scientist Paul Dourish highlights the importance of valuing ethnography not only for the "rich descriptions" it brings to HCI and ubiquitous computing research, but especially for its "analytic contributions"([12] p. 29). We agree, and see this as an important step towards bridging the gap between networking research and the people, which will require a better understanding of researchers' positionality. The richness of ethnography lies in its ability to uncover behaviors and patterns that remain invisible to purely quantitative observation. Much like classical Internet measurement reveals the structure and dynamics of networks, ethnography measures the human systems that shape how those networks are built, operated, and experienced.

4 Positionality

In our experience, the quest for an abstract, top-down objectivity to justify and validate networking research has diminished the possibilities of what it could entail and produce. This has happened, for instance, by omitting the interactions that commonly occur between researchers and stakeholders that bring insights into the research questions. Drawing from feminist studies and STS, we suggest situating ourselves and our knowledge in our work, revealing our lenses and positions to acknowledge and embrace the different perspectives present in our community [9].

Positionality is a concept encompassing hidden aspects of researchers' perspectives that may affect their research questions, methods, and results, which conventionally do not fall into a conflict of interest. Authors use positionality in the introduction or methods sections to situate or position themselves within the research, often including their geographic location, socioeconomic status, personal beliefs, and affiliations with specific communities. Beliefs can be political, social, theoretical, or even religious, so long as they are relevant to the work. Communities and institutions can range from being part of a special interest group (e.g., a bitcoin enthusiast) to being a member of the researched group (a hacker collective). For example, one of the authors in this paper might situate themselves as a network engineering expert, located in the Global North, with a feminist, democratic, rural, community-based focus and lens, or a white network engineer with ties with the industry due to this and that reason. By defining and explaining the researcher's situated knowledge, we recognize that who we are, what we experience, and what/who we know, impacts our research. Positionality challenges researchers to unveil where they are situated within their own work, the greater research community, and society as a whole. Through situating ourselves and our knowledge production, as Kim TallBear states, we move ourselves "towards co-constituting my [our] own knowledge

in concert with the acts and claims of those who I [we] inquire among" ([44] p.4). The researcher critically analyses their own point of view as well as their subjects', towards creating the knowledge together and on equal footing.

Essentially, our goal in introducing positionality is to acknowledge that, while we often clearly indicate the interests of stakeholders such as companies, data sources, or users, **the researchers themselves doing quantitative or qualitative analysis are critical elements of the eventual research outputs and should describe themselves** in as much detail as is relevant to the work.

Unveiling reflexivity — community networks. Community networks (CNs) are a socio-technical framework in which users build and operate their own network infrastructure to provide themselves with Internet access or other network services. Specialized technologies have been developed for community networks, for example, wireless mesh firmware [1–3, 13] and hardware [13, 16] designed to maximize simplicity for non-expert end users, repairability, and the ability to extend networks in a DIY, decentralized fashion. Work on production-grade open-source cellular network software in academic spaces has long been driven by use cases of benefit to local operators in low-resourced rural areas that would otherwise remain underserved by large operators with the resources to develop their own closed-source solutions [19–21, 41]. In these problem spaces, researchers often use ethnographic [5, 23] and participatory [22, 28] methods to understand factors that will make network technologies more or less translatable to a given environment or context.

To conduct sound analysis and design, researchers in these spaces must be cognizant of their own positionality as well as the differences between that of technology implementers and users. For example, Jang et. al. explores the influence of the positionality of the researchers and core mobilizers to the physical implementation of the Seattle Community Network (SCN) project [23]. In this, Jang operated in many different roles, often with competing goals, infrastructures, and capacities. During the initial project years, she was both the network lead, organizing the technical deployments and community outreach with volunteers and users, and the research lead, leveraging these connections for research contributions, both social [24] and technical [27]. Without these reflections on the participants' positionalities in the project, she would have struggled to provide the necessary detail and accurate, grounded view into the process of building an operational, impact-focused research network [23], limiting its reproducibility and impact.

5 Engaging: Recommendations

This article does not argue that all networking works need to include human elements; indeed, it is clear that many innovations exist entirely in technical realms. Rather, we suggest that by including human perspectives, new and interesting networking research will be found. It would help ideate solutions that are more accessible to a larger communities, such as *low-cost*, *low-power*, and *privacy-aware* networks applicable. It would also broaden the scope of what counts as networking while contributing new insights to the field. In discussing our experiences using different research tools in our own networking research, we hope we have shown that this is the case. In particular, we argue for the following additions to the networking research methods and tools canon and a set of "best practices" in broadening the field.

5.1 Include and document your partnerships in the research process

First, we argue that the best research happens when informed by practitioners in the field of interest. While much of our own research has worked primarily among marginalized groups [29], where such inclusion is a critical piece of fundamental ethics in research, the vast majority of existing networking research engages with specific stakeholders related to the area, be it datacenter operators or sensor users. However, these relationships are often not shared or those partners are removed once the "research" begins. A key call in this paper is to **include those partners in the formative work** to (1) ideate the research problem and solution, (2) explore specific solutions, and (3) evaluate artifacts in their real-world environments. Networking is fundamentally a field grounded in practice and we should bring that to the forefront.

Given that working with partners is common in networking, a key call in this paper is to, as informed by participatory action research, both **conduct *and document* those grounding engagements**. Talk about the partnerships you have formed, how they were formed, and how they influenced your research designs, implementations, and evaluations. Again, this is not foreign to networking research (seen most notably in "production systems" track works) but not common in more "formative" investigations. However, they still exist and should be included.

5.2 Detail your informative conversations

Building on the discussion of ethnographic methods (both traditional and "patchwork"), it is clear that a great deal of practical qualitative information gathered during research is lost during our publication processes. We argue that authors should make efforts to robustly collect and analyze even informal, personal, and ad-hoc communications with

key stakeholders (the "Work before the work" [33]) as this information leads to significant practical and informative contributions to the work.

Again, given that such conversations are common in networking research, **include your formative discussions in the research artifact**. Detail the sources you have, how they informed your research (often with direct quotes if available, paraphrasing if not due to privacy concerns), and any open questions that remain from the discussions. If there is a significant corpus, these conversations can be formally coded [1] but if not, simply documented and discussed. Including such data will provide a more thorough understanding of the goals and design considerations of the projects.

5.3 Reflect on your own perspectives

Lastly, we argue that the authors should reflect on their own positionality in the research endeavor. While this often manifests as questions of identity when studying marginalized communities (as your ethnicity, sexual preference, or other features can dramatically influence the nature of participant engagement), this is likely (but not always!) less appropriate in traditional networking research. However, the author's political perspectives or ethical views (such as a belief that decentralization is a natural "good" or that hyperscalers are the only actors that reduce carbon emissions in computing) could have similarly huge implications for the value of the research. For example, we would expect that a blockchain researcher being a staunch proponent of Bitcoin versus being a skeptic could produce very different works.

We hope that the networking community supports researchers **reflecting on their own positionality in their research**; why they think it is a good thing to build what they are building or improving the performance of the thing they are improving. There may not be much variation in many; indeed there are many shared norms in networking, notably that the Internet is "a good thing", that we are "objective" researchers, and that all systems should be able to operate at scale [2]. However, researchers with heterodox views will be provided a space to make their goals clear and allow for the rest of the community to evaluate their contributions in the context and headspace they were created in.

6 Discussion

6.1 Other human-centered methods

We have only selected a small subset of human methods that we have personally made extensive use of in our own networking research. Some examples of other methods include diaries, case studies, and focus groups [32], which can be implemented individually or in conjunction with other methods. They can also be blended with quantitative approaches, such as in the case of analyzing user diaries and technology probes to recreate and understand user interactions [7]. This work should be viewed as an effort to broaden the scope of acceptable network research methods, not determine the absolute set of them. We should all strive to be broad researchers who can tell the complete story of our work.

6.2 Limitations

6.2.1 Research at Scale. The Internet is the largest artifact ever created by humans and so networking researchers tend to expect results at scale. This has always been in conflict with researchers, who often operate as small groups without access to such enormous systems. There is a similar tension with our arguments here; qualitative human data is generally not done "at scale" [3]. Additionally, participatory methods with small organizations that do not operate "at scale" may not seem important in a system as big as the Internet.

We note two thoughts: First, while data from a small number of actors may not seem to be "at scale", it's clear that there are individuals with enormous influence on the network and limited datasets from interactions with these actors can have huge scaled implications. Second, many important problems are worthy of solving even if they only impact a single community. Current methods often ignore these problems as edge cases, but we contend that addressing problems at a smaller scale can be more valuable than designing a scalable solution that does not fully address the underlying issue. Partner-centric research still leaves room for scalability when partners care about scale or when patterns emerge of groups facing similar problems in different contexts.

6.2.2 Lack of technical depth. Similarly, some partners will not care whether the answer to a problem is technically novel or complex. Partner-centric methods, therefore, may result in relatively "mundane" solutions that require more effort to justify publishing in top venues. This requires us to redefine mundane by acknowledging that many interesting and challenging networking problems cannot be solved through a purely technical approach. Indeed, this is a fundamental goal of this work: showing that many interesting problems and solutions exist outside of solely technical domains. BGP, for example, is not especially complex in protocol design (at least prior to the integration of security mechanisms), yet it continues to be a rich source of research because of the social and economic dynamics it encodes [15, 34, 40].

[1] A technical approach in qualitative research for organizing unstructured data, identifying patterns, and deriving themes for analysis.

[2] Some of the reviewers indicated they do *not* hold these seemingly universal views. All the more reason for some reflexivity in the work!

[3] Noting that survey methods do attempt to do this, but have a host of practical issues in the networking community that we consider out of scope.

Bringing these "technically mundane" problems into the networking community would present opportunities to design cross-disciplinary systems beneficial to all parties.

6.2.3 Ethics, consent, and power dynamics. Formalizing interviewing and data collection protocols should involve the inclusion of guardrails for maintaining ethical research practices. Protocols that consider components of ethical research, such as consent and addressing power imbalances, strive to ensure psychological safety and data protections for participants [11, 37]. While the power balances between network researchers and industry practitioners will rarely be considered high-risk, we do agitate for broadening networking research outside of this limited context and that will change those dynamics. For example, this is highlighted when working with Native American/Alaska Native communities, many of which participate in tribal telecommunications work [41, 45]. Researchers have a longstanding history of abusing and taking advantage of Indigenous communities for the sake of collecting data [8, 43]. While out of scope for this document, make sure to consult your institutional review board and social science colleagues for best practices on ethical qualitative research practices.

6.3 Opportunities

We briefly discuss some of the interesting research opportunities we see these techniques enabling:

6.3.1 Broadening partner-centric research agendas. The Internet only grows, with billions of people online. Concurrently, networking research continues to largely focus on hyperscaler datacenter operators that often fail to directly benefit users. Expanding the scope of networking research to more rigorously incorporate qualitative methods will facilitate engagement with other Internet stakeholders and create new and growing areas within networking. These methods have the capacity to help surface new problems, connect network designs to human outcomes, and engage with projects that are outside of traditional market-driven contexts.

6.3.2 Expanding what counts as a contribution in networking. The adoption of human-centered and partner-oriented methods allows for a wider range of contributions to be valued. Today, work that is grounded in stakeholder engagement, community priorities, or qualitative insight often struggles to find its place in traditional networking venues, which tend to emphasize system performance, measurement scale, or novelty in tooling. As a result, important and impactful research, particularly work involving small networks, underserved populations, or non-commercial actors, can be overlooked despite their relevance and impact.

Bringing these forms of work into the mainstream of networking research expands our methodological vocabulary and our conception of what counts as important knowledge. By extension, it also enables deeper collaborations across disciplines, makes room for researchers with diverse skill sets and lived experiences, and creates clearer pathways for work that links measurement to real-world needs. If embraced, this shift could help the community grow in relevance, diversity, and societal impact, while staying grounded in the core challenge of understanding networks and the Internet.

6.4 Other Research Communities

One may ask: *"Why not just publish human-centered networking research at human-centered or in more open-ended books?"* Indeed, HCI venues accept and encourage qualitative methods-based networking research [28, 45]. Similarly, there's a delightful history of networking books centering the people of the Internet [18, 47]. However, these venues are rarely well situated to deeply engage with the technical elements that drive networking research. Moreover, networking researchers read networking venues. Bringing qualitative methods to networking venues enables our community to engage in more critical and impactful networking research itself and broadens the field. **We strongly suggest that the networking community, specifically the people setting the calls for papers and other community leadership, explicitly encourage human methods in their research communities.** It is our belief, validated through follow-up "hallway" discussions, that the human parts of our work are fascinating, important, and valuable contributions to networking research that need to be shared.

7 Conclusion

We have argued that human insight is already embedded in networking research but we have failed to systematically incorporate it into our work. By integrating participatory, ethnographic, and positional perspectives we provide a path to formalizing the role of humans in shaping both problems and solutions. This work does not replace technical rigor but sharpens it by anchoring our questions in the realities of how networks are built, run, and experienced. This paper is a first step and we hope it encourages the community to embrace the stories behind our research, how ideas take shape, how discussions and collaborations influence our direction, and how the people involved define the questions we pursue.

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