July 9, 2013

Internal Revenue Service
Gregory Schantz, ACN: 534-27
SE:T:EO:RA:T:3
1111 Constitution AVe. NW
Washington, D.C. 20224-0002

In response to your letter dated 3 June 2013:

1. Question 1

   (a) Part A
   Our Articles of Incorporation and Bylaws, including all annexes, appendices, and amendments are attached as Appendix A.

   (b) Part B
   The requested document is included in Appendix A. We apologize for our oversight.

   (c) Part C

   - Main Site: https://www.thefnf.org
   - Wiki: https://commons.thefnf.org/
   - Photos: http://photos.thefnf.org/
   - Task manager: https://chili.thefnf.org/
   - Communications: http://conference.thefnf.org/
   - LinkedIn: http://www.linkedin.com/company/the-free-network-foundation

   (d) Part D
   Due to the large volume of online content that we produce, we thought it appropriate to focus on building a representative sample of our online media. This sample is included in Appendix B.

   (e) Part E
   We are happy to answer and questions that you might have about Board actions, and have included a list of all those motions passed by the Board in Appendix C.

   (f) Part F
   Our educational materials and documentation are licensed under the Creative Commons Attribution, Share-Alike 3.0 License. Any software that we produce is licensed under the GNU General Public License v3. Both licenses are included in Appendix D

   (g) Part G
   We use a variety of sources in the course of our educational program-

ming. We have included a representative sample of that material, including course syllabi, in Appendix E.

(h) Special Note:
Pursuant to our conversation with Gregory P. Schantz on 24 June 2013, we have included amended answer to IRS Form 1023 as Appendix F.

2. Question 2

(a) Part A

- Isaac Wilder (Chairman) - As Chairman of the Board of Directors, Isaac sets the agenda and facilitates board meetings.
- Tyrone Greenfield (Secretary) - As Board secretary, Tyrone is responsible for taking board minutes and conducting votes.
- Patti Wyble - As a member of the Board of Directors, Patti helps to establish the strategic direction of the Foundation and votes on Board matters. In addition to her critical thinking, her background as a non-technologist helps to keep our decisions grounded in reality.
- Martin Dluhos - As a member of the Board of Directors, Martin helps to establish the strategic direction of the Foundation and votes on Board matters. His background as a softwareware and systems engineer help inform decisions regarding technical matters.
- Gregory Foster - As a member of the Board of Directors, Greg helps to establish the strategic direction of the Foundation and votes on Board matters. His background as an advocate for digital inclusion and netrights helps us find our way in the broader ecosystem of network educators and advocates.

(b) Part B

- Isaac Wilder, Executive Director - As Executive Director, Isaac is responsible for managing the day-to-day education and research programs of the Foundation. He regularly speaks at conferences and seminars, and conducts hand-on training with network operators around the country.
- Charles Wyble, Chief Technical Officer - As CTO, Charles leads our research program and helps to develop educational resources for advanced students. He has engineered, and continues to expand, our network-accessible teaching laboratory.
- Tyrone Greenfield, Chief Operating Officer - As COO, Tyrone helps keep the Foundation running smoothly. His day-to-day responsibilities include outreach to prospective students, fundraising, bookkeeping, and other administrative tasks.

- James Yox, Chief Information Officer - As CIO James helps keeps the servers which host our content running, and helps to develop new tools that can be used to reach and interest prospective students. He is presently developing software to help prospective operators connect with one another and get the resources they need to begin their journey of discovery.
- Clint Wynn, Director of Education - As Director of Education, Clint helps develops our curricula, and acts as our go-to classroom instructor.

(c) Part C

- Richard Stallman - Richard Stallman, the father of the Free Software Movement, advises the Foundation on matters of political economy and licensing.
- Jeffery Sterling - Jeffery Sterling, a renowned peer-to-peer economist, advises the Foundation on issues of political economy and governance.
- Devin Balkind - Devin Balkind, a long-time open-source advocate, helps connect the Foundation with other 501(c)(3)'s and social good organizations.
- Patrick Gibbs - Patrick Gibbs, a student of sustainability and permaculture, helps keep our work grounded in ecological reality.
- Gordon Cook - Gordon Cook maintains an extensive network of heavy hitters in the Internet community, and has helped connect the FNF to many leading thinkers and doers in the sphere. His writing has helped introduce the world to our programming and work.
- Jeff Michka - Jeff Michka has 20+ years of experience in community organizing, and helps advise the FNF on issues of structure and governance.

(d) Part D

- Harris Wilder, Attorney - Harris Wilder is our primary attorney, and has handled various filings with state and federal government.
- Kathy Burlison, Accountant - Kathy Burlison is our accountant, and has helped us prepare and file our tax returns.
- Holly Schadler, Tax Attorney - Holly Schadler has advised us in the filing of the response and amendment of our 1023.

3. Question 3

(a) Part A
At the time that we filed our Articles of Incorporation, the FNF did not have any members. We have since added members.

(b) Part B

No, they do not have to be members in good standing.

(c) Part C

Members vote on those issues brought before the membership by the Board of Directors. There are no additional benefits to membership.

(d) Part D

All classes of members enjoy identical benefits. The sole difference between the classes of membership is amount of their contribution.

(e) Part E

Membership dues, as established by the Board of Directors, are sixty dollars per annum.

4. Question 4

(a) Part A

We aim to foster community telecommunications networks through education and awareness building. Because we don't own or operate any networks, we are not in a position to impose a particular organizational or capital structure. Nonetheless, we do address these issues in our education and outreach. We are proponents of a system in which networks are capitalized through the contributions of individuals, organizations, and governments. While the components of the network are owned by those that contribute those components, the network as a whole does not have a single owner. The basic idea is that each individual or group contributes according to their ability, and that all of the network resources contributed to the network are open for use by all. In this way, individuals and groups can benefit themselves and their communities by creating economic and educational opportunity. In practice, this often means that those who are better off subsidize building networks for those who are in need. We promote an economic framework that makes such mutual benefit possible. Though we have ammended the language in Part 4 of our 1023, I do want to clarify that our desire to create a network 'owned by the whole of humanity' is, in practice, an effort to help communities build their own networks, coupled with the hope that such an idea will have mass appeal once its merits are clearly demonstrated and well documented. We have made significant strides towards realizing our vision over the past two years, by working with communities to help them provide for themselves.

(b) Part B

We do include individuals in the whole of humanity, though most of our work thus far has been with other 501c(3)'s and government entities. Because those that stand to benefit the most from the proliferation of free networks do not have the resources to build them, we have reached out to charities to help realize these networks. At this time, all of the network infrastructure that has been deployed as a re-

sult of our activities is owned and operated by one or more 501c(3)'s. We are in talks with various municipal governments about assisting in our efforts, though we have not yet secured their involvement.

(c) Part C

While we do work extensively with 501c(3)'s, and increasingly with government entities, we do not think it would further our charitable and educational aims to limit ownership to those classes of organization. More than that, our position as an educational consortium does not give us the ability to limit the ownership of any networks. By promoting an ownership model in which all can participate, we seek to foster networks that will not ultimately require charity or government monies in order to function.

(d) Part D

While we do view our work as a way to help those in need, we do not believe that the best way to do so is by limiting network access solely to charitable classes. While we are not in a position to limit who can access networks built in accordance with our teaching, we do have control over who has access to our educational programming. We do not limit access to charitable classes, though we do make the programming available to those in need at well below our own cost. (We charge a nominal fee, only because we think it improves student commitment). In practice, access to existing free networks has not been limited to charitable classes, although serving those classes has been the primary focus of our students' efforts. To date, more than one thousand individuals living in federally subsidized low income housing have been brought online through the construction of free networks. It is likely that some of their neighbors have also received the benefit of connectivity, and while we don't know for sure that they qualify as poor, we do know that the average income in those neighborhoods is below the poverty line.

(e) Part E

While we don't verify eligibility for network access, individuals may show evidence of government assistance (eg. food stamps, section 8 housing, reduced price school lunch) in order to receive reduced tuition for our educational programs.

(f) Part F

Because we do not operate any networks, we're not in a position to charge any fees for access. In practice, the free networks that have been built by our students have offered free internet access for those that can demonstrate need. This is made possible through the drastically reduced cost of network built according to our principles, and the generous grants of several individuals and 501c(3) organizations. Though the revenue would not come to us, it would be possible to use program revenue from non-subsidized network participants to subsi-

dize access for those in need. This is similar to what we do with our education programs, where regular tuition helps to subsidize costs for those that otherwise wouldn't be able to afford a class.

(g) Part G

When it comes to those in need, yes. As previously mentioned, more than a thousand individuals with demonstrated need are receiving Internet connectivity at zero cost because of our work. While it is impossible to make guarantees about what our students will do with their learning, we do and will provide our services at well below cost to those in need (certainly more than 85% below cost).

5. Question 5

(a) Part A

We conduct research into improved building blocks. Due to differences in physical and human geography, there is no turn-key solution that will work for all those who wish to build free networks. Our aim is to help research better ways of solving networking challenges, and to share the results of that research. While our aim is to advance the state of the art to make building networks as simple as possible, the fact of the matter is that a significant engineering effort is still required on the part of aspiring operators.

In order to build an operational network, the following steps are required: It is necessary first to physically and electromagnetically survey the area in which the network is intended to be built. After a survey is completed, an operator must determine the appropriate frequencies, requisite gain levels, and optimal network topology. Our research informs this decision-making process through a better understanding of network performance and design. Once a topology is decided upon, appropriate hardware has to be purchased, and the correct software has to be installed. There are numerous hardware vendors that we recommend to our students. The software may be free software, or it may be proprietary software. We do contribute to some useful free software tools, but we do not stand to make any economic gain from our contribution. Once installed, the software must be configured, which generally entails the modification of device code and filesystem contents. Once the configured devices are physically installed in preselected locations, the network becomes operational.

(b) Part B

We do not intend to operate any networks, though we do teach network operations in the course of educational work. As we describe in detail below, we believe in hands-on learning, and so we do go into the field with our students and help show them how to solve real-world challenges.

(c) Part C

The FNF has been party to a number of discoveries over the past two years that serve to further our charitable and educational purposes. Our research efforts focus on discovering new and better ways to build networks, so that we can better educate our students, and thereby get more people online. We have contributed to:

- An improved understanding of network routing and the interplay between Layer 2 and Layer 3 routing protocols in the architecture of segmented ad-hoc networks.
- An improved understanding of statistical multiplexing on low-loss and high-loss transmission media, with major implications for the management of line contention in networks.
- Numerous discoveries in the social sciences, specifically regarding practices of community resource management, and the necessary conditions for the sustained operation of resources that are held in common.

We view reasearching and contributing to better networking systems as an integral part of our role as educators, and have no intention whatsoever to commercialize any of our work.

(d) Part D

Our discoveries are made through observation, hypothesis, experimentation, and analysis. Given our knowledge of the technical and economic realities of our field, we formulate hypotheses regarding the efficacy of certain mechanisms, be they technical, social, or economic. In order to prove or disprove said hypotheses, we generally bring the mechanism in question to reality and observe its functioning. For technical hypotheses, such research generally takes place in one of our two labs, and often involves writing code to demonstrate and observe the natural mechanism in question. Said code, if it is published, is published under a free software license. For social and economic hypotheses, such research generally takes place in the field, through interaction with, and observation of target population behaviors. The findings of social and economic research are published openly and are free to all.

(e) Part E

The FNF does not have any intention to copyright the discoveries it has made.

(f) Part F

The question of copyright ownership is not directly applicable, but any intellectual property rights that the FNF generates will either remain the property of the FNF, or be transferred to another 501c(3) organization. We will ensure that a non-discriminatory license for their use is granted in perpetuity.

(g) Part G

All of our research outputs are published either under the Creative Commons Attribution-Share Alike 3.0 License or the GNU General Public License, both included above. Both licenses provide for usage of the licensed material by the public, on the condition that they attribute their work, and agree to share derivative works on the same terms.

(h) Part H

We engage with issues of network design only in our capacity as educators. While we don't design usable networks, we do engage in research into network performance and architecture. We estimate that less than 10% of our efforts are in networking research.

6. Question 6

(a) Part A

Yes, this is our primary activity.

(b) Part B

We have several educational programs, which are targeted at distinct classes of individuals and/or organizations.

i. I - Operator Education

The first program - the one which is most developed and well underway - is targeted at a class that we usually call 'network operators'. In the context of our programming, this means individuals or organizations that are interested in learning how they can start and maintain a community network. These tend to be people or groups with a high baseline level of technical understanding. This sort of program is intensive and continuous we work with people as their schedules allow and their need arises, in the lab and in the field. Usually, the instruction in the operator program has a large component of material that is applicable to computer networks in general, and not just to community networks. The purpose is to make sure that a potential operator has all of the knowledge they might need to properly engineer and troubleshoot a community network. Most often, instruction takes place through 'tandem engineering': dealing with real-life problems side-by-side with the operator-in-training, taking special care to elucidate the decision making process. The main objective of these sessions is the transfer of knowledge and know-how, and the hands-on approach allows students to make rapid and meaningful progress. Until now, we have not charged for such instruction, but we do not preclude the future possibility of such. It is likely that payment would be structured on a weekly or monthly basis, as the amount and specific type of instruction varies depending on the student's needs.

    ii. II - Youth Education

The second program, targeted at youth in general, and under-privileged youth in particular, is currently being piloted. Working with several $501(c)(3)$ partners, we have put together a highly-structured and competitive program for immersive instruction in computing. This program teaches life and job skills, along with giving youth an opportunity to give back to their communities by helping to maintain community infrastructure. The fee structure for this program is such that program revenue from full-rate tuition is used to subsidize tuition for those that cannot afford the full cost. We do ask that everyone pay something (sliding scale). The full tuition cost of $500 includes a linux computer, and a wireless router.

    iii. III - Public Education

The third program is aimed at the general public, with the aim of increasing their understanding of how communications systems work. This program consists mainly in the distribution of educational materials at public events, open discussions where people can ask questions, and the occasional workshop or lecture. These services are generally rendered free of charge, though there have been circumstances where we have received speaking fees. Such program revenue generally goes to underwrite the costs of other public education programming.

(c) Part C

All of our instruction is open and available to the general public.

(d) Part D

The vast majority of what we do is education. We would estimate that 85% of our efforts are directly educational.

7. Question 7

(a) Part A

We do not target specific legislators or public officials with advocacy campaigns. We believe there are more than enough lobbying groups, and in retrospect probably misused the term 'advocate' in our original filing. We attempt to raise public awareness, but we never attempt to influence particular legislation or get involved in politics.

(b) Part B

We occasionally endorse open letters to various entities within industry and the public sector. Generally, such letters are in regard to transparency, openness, or specific policy, and are intended to inform and educate their recipients and the public at large.

(c) Part C

Less than %5 of our activities will be advocacy.

(d) Part D

We do not and have not participated in any political campaign whatsoever.

(e) Part E

Less than %5 of our revenue will be used for advocacy. None of it will be used for political advocacy.

(f) Part F

Aside from restrictions on illegal activities, there are no content restrictions relevant to community network technology. The structural separation between our role as educators and the community's role as operators and owners means that network usage is determined by communities. An apt analogy might be to a group that teaches individuals how to use a printing press: if one of their students establishes a press, and the press is then used to print political flyers, it is not done under the auspices of the educator, but rather under the auspices of the individual press and candidate. If an individual wishes to campaign for public office, they would be free to do so via a community network, in the same way that they would be free to print flyers.

8. Question 8

(a) Part A

Because we do not own or operate networks, we are not in a position to enforce any specific terms of use. In general, we strongly encourage aspiring operators to establish a network license agreement that mandates a number of specific provisions with regard to which behaviors are and are not allowed on the network.

(b) Part B

Networks that are licensed according to our instruction strictly prohibit illegal activity. Bear in mind that we do not operate any networks, and so we are not in a position to enforce any network license.

(c) Part C

Yes, potentially. We license our technology and educational materials under industry standard open source software and open documentation licenses, included above. We should stress that our work is intended to foster a public good, and that illegal uses are directly contrary to our intent. Because we don't operate networks, we're not in a position to set their terms of use, but we strongly encourage our students to establish licenses that prohibit illegal usage of their networks, and to establish mechanisms for swiftly removing any violators from the network.

(d) Part D

No. Industry tools for lawful intercept can be used on Free Networks

in the same way that they are used in private networks. There are no mechanisms within the network to prevent such intercept. DHCP and NAT logging capabilities (standard tracing tools) are available for all traffic (where applicable), and participants are generally required to give their contact information in order to join the network. We cannot control what our students do with their knowledge, but we impress upon them the importance of building lawful intercept compliance systems into the network, and give them the tools to do so.

9. Question 9

    (a) Part A
    The process of interconnecting networks is generally called 'peering'. Free Networks are able to peer with other networks in the usual way. In practice this means either purchasing connectivity from an incumbent provider under terms which allow redistribution, or network interconnection at an 'exchange point'. Exchange points exist in most cities, and are facilities in which networks meet and exchange traffic. Exchange can be 'settlement free' meaning there is no payment, or 'settled' which means that the difference in the amount of traffic exchanged is made up for through payment. It is important to understand that we (The FNF) do not own or operate any networks. Our role is simply to educate current and future operators. As an example, The Free Network in Kansas City is owned by a diverse consortium of public and private sector operators. It is connected to the Internet in multiple ways. At Juniper Gardens, a public housing project in Kansas City, KS, the network is connected to a Time Warner Cable Business Class connection. This connection is maintained by the Kansas City, KS Public Housing Authority. At the same time, Connecting for Good, a Missouri non-profit, maintains a connection through a provider in Oak Tower, one of Kansas City's two major Exchange Points. The provider, Joe's Datacenter, LLC, buys connectivity from major providers such as Level 3 Communications, Hurricane Electric, and Cogent Communications, mixes their bandwidth, and resells it at wholesale margins. The Time Warner Cable connection is $350/mo, and the connection through Joe's Datacenter is $125/mo, including co-location of routing equipment. The specific service provided in both cases is generally referred to as 'IP Transit.'

    (b) Part B
    The FNF is not an Internet Service Provider. We teach communities and individuals how to become their own Network Service Provider. On a technical level there are very few differences between a community-built network and a commercial network. The main difference is the model of ownership and costs. Commercial ISP's such

as Comcast and Verizon own the infrastructure, and charge rent for its usage. Community service providers own their own infrastructure, allowing them to buy wholesale bandwidth, distribute it themselves, and pay only the actual costs of doing so. Because the users are the owners, the idea of 'profit' does not apply. To be clear, however, the FNF is not an Internet Service Provider, nor do we intend to operate networks. Our mission is to develop educational resources, and to educate people - empowering them to build infrastructure for themselves and their community.

(c) Part C

FreedomBoxes, FreedomNodes, FreedomTowers, and FreedomLinks (collectively referred to as FreedomStack) are, indeed, interconnected hardware/software packages. Our role in their development is as one of many groups worldwide contributing to an open source ecosystem. We do so in an effort to give back to the community that makes our work possible, and to improve the quality of our educational tools. The FNF has no financial interest whatsoever in the software to which we contribute. We do not sell the equipment or software. FreedomStack, as such, is an educational tool, meant to show our students and the public what can be done with existing, off-the-shelf components and free software. In practice, network operators are sure to develop and employ many configurations different from, even if inspired by, the stack.

    i. Yes. We do purchase and assemble components into Freedom-Stack components for use in our lab and in educational practice.

    ii. We do not sell these assembled components.

    iii. The software is available to all without cost, and the hardware can be purchased from unaffiliated vendors at market rates.

    iv. We do not expect to generate revenue from the sales of Freedom-Stack components.

    v. %0.

Truly,

Isaac M. Wilder
Executive Director, The FNF

Under penalties of perjury, I declare that I have examined this information, including accompanying documents, and to the best of my knowledge and belief, the information contains all the relevant facts relating to the request for the information, and such facts are true, correct, and complete