

## **Chapter IX**

# **Ethics of “Parasitic Computing”: Fair Use or Abuse of TCP/IP Over the Internet?**

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## **Abstract**

*This chapter discusses the ethics of a proof-of-concept demonstration of “parasitic computing.” A “parasite” computer attempts to solve a complex task by breaking it up into many small components and distributing the processing of these components to remote computers that perform this processing without the knowledge or consent of those owning the remote computing resources. This is achieved through the use of the TCP/IP Internet protocol and, in particular, the checksum function of this protocol. After a discussion of similar exploits, the ethical issues involved in this demonstration are analyzed. The authors argue that harm should be the standard for determining if parasitic computing is unethical.*

*They conclude that a revised notion of the rights of ownership is needed when dealing with the shared nature of the Internet. Suggestions for future research are offered.*

## Introduction

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This chapter will examine some of the issues raised by a proof-of-concept demonstration of “parasitic computing” reported in the journal, *Nature* (Barabasi, Freeh, Jeong, & Brockman, 2001). In this type of computing, a “parasite” computer attempts to solve a complex task by breaking it up into many small components and distributing the processing related to those components over a number of separate remote computers. While the parasitic procedure represents a form of distributed computing, it differs importantly from other well-known examples such as the Search for Extraterrestrial Intelligence (SETI) Project (SETI@home, 2003). The distributed computing utilized in SETI involves volunteers from around the world who allow their local computers to be used for ongoing analysis of vast amounts of data obtained from a radio telescope constantly scanning the heavens. SETI allows anyone with a computer and Internet connection to download software that will read and analyze small portions of the accumulated data (SETI@home, 2003). In effect, SETI has created a super computer from millions of individual computers working in concert.

Like SETI, parasitic computing takes advantage of the power of distributed computing to solve complex problems, but the parasite computer induces “participating” computers, already connected to the Internet, to perform computations without the awareness or consent of their owners. By their own admission, Barabasi et al. (2001) were aware of the ethical issues involved in their demonstration of parasitic computing. On the project Web site they state: “Parasitic computing raises important questions about the ownership of the resources connected to the Internet and challenges current computing paradigms. The purpose of our work is to raise awareness of the existence of these issues, before they could be exploited” (Parasitic Computing, 2001). In this chapter, we will begin to explore these “important questions” by focusing on the type of exploitation inherent in parasitic computing and by considering some of the ethical issues to which this new form of computing gives rise.

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