Repository Entry – CS 145
Embedded EthiCS @ Harvard Teaching Lab

Overview

Course:	CS 145: Networking at Scale
Course Level:	Lower-level undergraduate
Course Description:	This course studies computer network topics including Layer 2/Layer 3 topology, routing, transport protocols, traffic engineering, network functions, programmable switches, and software-defined networking. Modern networks have grown to large scale (connecting millions of servers) and high speed (terabits per second) to meet the needs of cloud applications in business and society. Thus, in addition to learning the conventional concepts in networking, we will also discuss how to adapt these concepts to large-scale networks. These discussions will hopefully help deepen our understanding of networking technologies. This course includes lectures and system programming projects.
Module Topic:	The Ethics of Cloud Computing
Module Author:	Daniel Belgrad
Semesters Taught:	Spring 2023
Tags:	Cloud computing [CS], Cloud security [CS], Data sharing [CS] Free speech [phil], Economic rights [phil], Informational privacy [phil], Ignorance [phil], Moral responsibility [phil]
Module Overview:	The module asks under what circumstances a cloud computing service may refuse services to a customer. We begin by breaking down this larger question into various factors that shed light on the topic, and subsequently, interrogate each factor. Then, we return to our original question and use example cases to think through the problem.	
Connection to Course Material:	The students have spent time learning about cloud computing companies and services, and this module is meant to interrogate the ethics of those services.	The students have spent a great portion of their semester learning about the intricacies of cloud computing. The module allows us to take a step back and consider the moral ramifications of providing and censoring services to various companies.

Goals

Module Goals:	1. Provide a framework to think about whether cloud computing companies may ever refuse services 2. Think about what factors might be relevant in answering this overarching questions 3. Interrogate each factor and debate our opinions in class	
Key Philosophical Questions:	1. Should a cloud computing company ever be able to refuse services to a customer?	The students were asked to consider four central factors: 1. Type of Merchant, 2. Actions of

2. Which factors are relevant in answering that question? 3. How does free speech enter into this conversation?	the Customer, 3. The Existence of Alternative Options, and 4. Free Speech. We discussed if and how each factor should be considered when we make determinations on the suspension of cloud services.

Materials

Key Philosophical Concepts:	● Free Speech ● Economic Reasons vs. Ethical Reasons (can an economic imperative ever justify immoral behavior?) ● Moral responsibility ● Positive vs. Negative Rights	A central debate in class was whether a cloud computing company may ever prioritize profit over and above other ethical responsibilities. We also questioned how responsible a cloud company was for the unruly actions of their customer, and debated whether or not the suspension of cloud services infringed upon a colloquial understanding of individual free speech.
Assigned Readings:	N/A	The students were particularly busy at the time, so we decided against the inclusion of a reading assignment. Specific articles on Palantir and Parler were considered (as preparation for the example cases). I would advise using an article to introduce one of the example cases, time permitting.

Implementation

Class Agenda:	1. Introduce the Module and Two Case Studies 2. Lecture & Discussion #1: Type of Merchant 3. Lecture & Discussion #2: Actions of the Customer 4. Lecture & Discussion #3: Existence of Alternative Options 5. Lecture & Discussion #4: Free Speech 6. Return to Case Studies	The module introduced four important factors that bear on the larger question of whether or not cloud companies may refuse service to unruly customers. We introduced each factor and had a discussion about the relationship between those factors and our intuitions about cloud companies.
Sample Class Activity:	We discussed why the actions of a customer are relevant in determining if a cloud company should suspend services. For example, you might think that if a customer acts egregiously, then the cloud	

	company should suspend services. In the activity section, the students divided into groups and debated various scenarios, where cloud customers acted in different ways. Then, we returned and discussed their responses as a larger group.	
Module Assignment:	N/A	The students were particularly busy at the time, so we decided against the inclusion of a module assignment. A possible assignment would be to ask the students to discuss *one* of the factors from class, and explain why that factor might matter for how we think about cloud company censorship (there are many to choose from, and the students should be well-equipped to do this).
Lessons Learned:	1. The students have strong intuitions about the role of cloud computing services, and general skepticism about the ethics of large tech companies. 2. The students often made comments that strayed from the more focused arena of the discussion, i.e. instead of discussing how free speech weighed on the issue, they would answer what Amazon should be doing more generally. It is important to make the boundaries of each localized discussion very clear, and hopefully compelling and relevant.	