

THE POLITICAL ECONOMY OF CLOUD COMPUTING

Cloud computing refers to the aggregation of data storage and processing power in large data centers, typically accessed by users over the Internet. (“Cloud”, 2011) This is in contrast to the more traditional method whereby businesses would purchase their own servers for data storage and host them in-house. Cloud computing therefore represents a step away from the physical – it is a “virtualization” of one's data. (*ibid.*) Cloud computing services provide platforms to develop applications, e.g. Google Apps, software to perform tasks, e.g. Google Docs, and the infrastructure for various online communities, e.g. Facebook. Mosco reminds us that political economy tends to focus on “the production and reproduction of invariant structures.” (1996, p. 29) The three corporations currently vying for dominance in the world of cloud computing are Google, Apple and Microsoft. (“Clash”, 2009) The sheer power of these corporations allows one to easily take their dominance for granted. But a political economic analysis of cloud computing will consider exactly how this oligopolistic structure of dominance will continue to be constituted or, perhaps, become constituted in a different way. (Mosco, 1996, p. 29)

Is cloud computing merely “a deepening and extension of fundamental tendencies at work since the earliest days of capitalism?” (p. 28) Many stakeholders seem to believe so, especially those in the corporate world. The headline of one article by an IT efficiency consultant reads: “Why Cloud Computing Will Reinvigorate Capitalism.” (Lucente, 2010) But a closer analysis reveals that cloud computing might represent something more complex than a simple reinvigoration of capitalism – it might represent a deepening of the societal turn toward Post-Fordism. This epochal transformation (Mosco, p. 28) has been in the works since the late

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20th century, but indications of a strengthening of Post-Fordism as an economic system are readily apparent in the rise of cloud computing. Fordism, for instance, benefited from economies of scale as workers were able to produce cheaper products from the expansion of factories. But Post-Fordism benefits from economies of scope, not scale. (“Post-Fordism”, 2011) In cloud computing, “data centers can get only so big before scale ceases to be an advantage.” (“Clash”, 2009) Rather than worrying about constant expansion, then, cloud computing companies emphasize the importance of product diversification. Google provides the best example of this as of 2011 – the company has developed many different cloud-based products, such as Google Apps and Google Docs. Another indication of cloud computing strengthening Post-Fordism is the emphasis it places upon the white-collar worker. (“Post-Fordism”, 2011) There is no doubt that many IT workers have lost and will continue to lose their jobs because of the rise of cloud computing, primarily those who are focused on maintaining the hardware infrastructure. This shift from blue- to white-collar foreshadows a deeper epochal transformation in the information economy.

Capitalism begins with the notion that one can control something outside of oneself. Property is easily alienable – it can be enclosed and assigned to one person. Blue-collar labour is more easily alienable than white-collar labour because of the physical nature of the work. This particular worker knows how to perform this particular concrete task and can produce these particular concrete results. White-collar, service-based labour is somewhat more nebulous and therefore harder to enclose and define precisely. Under cloud computing, then, the commodification of labour becomes somewhat more difficult and therefore

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threatening to capitalism. Furthermore, the commodities that corporations such as Microsoft have traditionally produced are threatened by the cloud computing model. Users no longer have to install a program directly to their computer – they can now simply use a cloud-based application. This, in turn, signifies the imminent death of shrink-wrapped software. Harvey reminds us that commodities under capitalism produce a kind of fetishism in which “the relations connecting the labour of one individual with that of the rest appear, not as direct social relations between individuals at work, but as material relations between persons and social relations between things.” (1982, p. 17) Shrink-wrapped software, an easily alienated and commodified entity, perpetuates this kind of commodity fetishism. It is a physicalization of the power of corporations. The social relations that were involved in the production of the software are lost sight of and reduced to sameness. One Microsoft Word Version 7.34 means just as much as another Microsoft Word Version 7.34. The product might appear to be personal when it prompts the user for his or her name upon installation, but fundamentally commodity fetishism results in an extreme depersonalization with social relations stripped away.

But Harvey wants to emphasize that the value of a commodity should lose its “technological and physical connotation” (p. 33) and instead come to be seen as a social relation. The discourse around cloud computing signifies a similar shift away from inherent technological value, in favour of potential social value. Stakeholders are talking about how the rise of cloud computing will democratize IT infrastructure, (Dignan, 2008) allowing essentially anyone with an idea and an Internet connection to leverage powerful data processing

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resources previously available only to those running well-financed businesses. The user also shares the cloud software with a community of other users more explicitly than when they are using alienated, pseudo-personalized, shrink-wrapped software. This allows for a greater consideration of social relations in the value of the product. Furthermore, virtualized software operating in the cloud is not as easily alienated and commodified as physical, shrink-wrapped software. This Post-Fordist shift toward entities that are not so obviously commodifiable might signify the necessity of reworking traditional forms of capitalism. Schumpeter's notion of creative destruction seems consistent with this occurrence – the innovation of cloud computing has destabilized certain aspects of the system, but this does not signify the downfall of capitalism so much as the beginning of a new cycle.

The most common economic argument in support of cloud computing is that it is less expensive than maintaining one's own servers. (“Economist”, 2009) But in order to consider the wider social totality on this issue, world-systems theory provides an appropriate platform because cloud computing is very much about globalization. Mosco writes, “[world-systems theorists] call for reversing the tendencies that have pushed us away from holistic and systemic realities toward the individual as the appropriate unit of analysis.” (p. 32)

Stakeholders associated with individual firms such as Microsoft want to focus on the threat that cloud computing poses to their traditional business models. But world-systems theory says that Microsoft's concerns are irrelevant compared to global concerns. Instead, the broader social implications that cloud computing raises should be considered. Arguments can be made for the positive impact that cloud computing could have on globalization. For instance, with cloud

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computing, organizations can more easily distribute their developments across the world and reach people in developing countries who might not have computers powerful enough to download and efficiently run traditional client/server applications.

Moral philosophy refers to social values and to conceptions of appropriate social practices. (Mosco, p. 34) The issue of privacy has become a moral concern for certain cloud computing stakeholders. Many wonder how privacy can stay protected in the cloud. (WH, 2010) They consider it wrong for cloud computing companies to hold the personal information of users without being transparent. How does a user know that their information isn't being transferred to another company for some secondary, unauthorized purpose? Salesforce.com is one cloud computing company that has responded to this question by creating trust.salesforce.com, which claims to provide "information on how we safeguard your data." (n.d.) Marx urges us not to base our society on class power but on "satisfying human needs." (Mosco, p. 35) The class power evident in cloud computing is similar to the elite domination that Herman & Chomsky warn about when they list the control groups of large media corporations. (1988, p. 9) Google, Apple and Microsoft are looking more and more like the traditional corporate giants CBS, GE and News Corp. every day. Their dominance over the cloud computing market persists. Because these companies control the relations of production, they can be said to constitute the "base." (Babe, 2009, p. 16) It is difficult to say definitively how much the base determines a society's overarching culture, or "superstructure," (*ibid.*) but its influence seems undeniable. Information policies allow us to address the normative question of how much we should allow the base to determine the superstructure. The rational,

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logical, positivist (Mosco, p. 35) approach to cloud computing would likely result in a neoliberal economic policy that simply allows Google, Apple and Microsoft to fight the battle amongst themselves in the free marketplace. But normative language (*ibid.*) might allow us to consider the ideal, the public good – how things *should* be. In the case of cloud computing, simply taking a neoliberal approach might result in the contradiction of moral principles that many consider to be the core foundation of the Internet. The current cloud computing oligopoly could easily transform into a full-fledged monopoly once one of the dominant three corporations manages to get an edge over the others. As the concept of net neutrality increasingly comes under fire, the dominant cloud computing company could then pay provider networks to give priority to their service. This would effectively kill the possibility of competition from smaller cloud computing upstarts. The moral principle that the Internet should always remain open and neutral would then be compromised. Recalling Marx's proposition that societies should consider the satisfaction of human needs, (Mosco, p. 35) we can ask ourselves here – what do users of the Internet truly need? Do they truly need openness and neutrality online, or would a monopoly actually serve their needs better? The appropriate answers would no doubt be complicated and probably vary by geographic region, but this line of questioning is what a political economic consideration of cloud computing would require.

Finally, praxis refers to “the free and creative activity by which people produce and change the world and themselves.” (Mosco, p. 37) Praxis is, essentially, critical reflection on practice. Every day, companies around the world are no doubt transitioning away from the old client-server model and adopting cloud computing. But do the owners of these companies

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have any idea about the implications of their actions? There are those who believe that the rise of cloud computing will result in no less than the democratization of online business ventures. Cloud computing, they claim, promises a future in which software is completely unnecessary and business start-up costs are essentially zero. (“Economist”, 2009) Literally, then, all an Internet user would need is an idea. But many of these entrepreneurs are likely unaware of the politically charged discourse surrounding cloud computing and are simply purchasing the service because it looks useful. Many users of the Internet are no doubt completely unaware that they are even benefiting from cloud computing when they use an application such as Google Docs. Perhaps if users became more aware of their cloud computing practices, some pressure could be applied to the oligopoly. Cognizant users could, for instance, deliberately choose a smaller cloud computing venture over one of the big three. This could go a long way toward preserving the democratic ideals of the Internet. In any case, it seems clear that an increased awareness amongst users of the potential meanings behind their online practices would be a positive development.

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