Read the two articles below, and use these as a basis for discussing the pros and cons of cloud computing. Obviously, you will also want to bring the various relevant concepts we have discussed in the course into your discussion of the cloud computing issue. In terms of length of your response, you can think of this as an advisory memo to a client in response to his question of whether you should continue to provide and support desktop computing in the client’s business, or begin to migrate IT operations to the cloud.

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From the New York Times

November 20, 2009

**Google Offers Peek at Operating System, a Potential Challenge to Windows**

By **MIGUEL HELFT**

MOUNTAIN VIEW, Calif. — Google began lifting the veil on its planned Chrome operating system on Thursday, but it said that computers powered by the software would not be available for a year.

The new operating system, which is closely tied to Google’s Web browser, also named Chrome, is seen as a potential challenge to Microsoft, whose Windows software powers the vast majority of personal computers.

But with the Chrome operating system, Google is not trying to build a better version of Windows. Instead, it is aiming to shift users toward its vision of “cloud computing,” a model in which programs are not installed on a PC but rather are used over the Internet and accessed through a Web browser. In Google’s approach, a user’s data will also reside on servers across the Internet, rather than on their PC.
Most PC users already rely on cloud computing, using their Internet browsers to access things like e-mail, photo albums and digital maps.

“Hundreds of millions of users are living on the cloud,” said Sundar Pichai, a vice president for product management at Google in charge of Chrome. Every program that users enjoy on their PCs today, Mr. Pichai said, will soon be available as a Web application. “The trend is very, very clear,” he said.

While Microsoft and others say they believe that cloud-based programs will coexist with traditional PC software, Google has often said that Web applications will replace all desktop software, another area that Microsoft dominates. Machines running the Chrome operating system, which initially will be limited to lightweight, portable computers known as netbooks, will not run any desktop applications other than the Chrome browser.

But even Mr. Pichai said that devices on the Chrome operating system were likely to be used, at least at first, as a complement to users’ more powerful computers at home.

Analysts said that the Chrome operating system could pose a challenge to Microsoft over the long term but said that Microsoft was not sitting still.

“Chrome OS moves the playing field to the cloud,” said Ray Valdes, an analyst at Gartner. “But Microsoft is a multifaceted company. They have a systematic effort to put a lot of their technology portfolio in the cloud as well.”

In a statement, Microsoft said that the Chrome operating system was in “early stages of development” and that “customers are already voicing their approval of the way Windows 7 just works — across the Web and on the desktop, and on all sizes and types of PCs.” Speaking to investors at Microsoft’s headquarters, Steven A. Ballmer, the chief executive, said that Windows 7 was outselling any previous version of Microsoft’s operating system.
On Thursday, Google demonstrated an early version of the Chrome operating system on a netbook during a news conference at its Mountain View headquarters. Google also announced that it was releasing the underlying programming code for the operating system to anyone who wants to tinker with it under an open-source license.

Not surprisingly, the Chrome desktop looked similar to the Chrome browser. It included a handful of smaller tabs that Google calls application tabs, which are meant to run the programs people use most often, like e-mail or calendar software.

The netbook using the operating system booted in seven seconds, and Google said it was working to make the start-up time even faster. Google declined to say which hardware makers were planning to build machines that used the operating system, but said it would work closely with manufacturers. It said it had been pushing them to make netbooks that were slightly larger than today’s models and included full-size keyboards.

Microsoft Office's Last Stand: Is Office 2010 good enough to fight off its free competitors?

By Farhad Manjoo Posted Thursday, Nov. 19, 2009, at 5:27 PM ET

It’s difficult to overstate the success of Microsoft Office. Calling it one of the best-selling tech products of all time is a bit like calling Michael Jackson a very popular musician—it’s certainly accurate, but it woefully misses the mark. According to Microsoft, more than 500 million people around the world use the Fantastic Four of productivity apps—Word, Excel, PowerPoint, and Outlook. Yet no one simply uses Office; for many, these programs are an essential daily tool kit, the ever-present background hum of the white-collar grind. There is no mystery to Office’s success.

Sure, Microsoft may have strong-armed its productivity suite to ubiquity, but unlike Windows, Office has long been unquestionably the best program in its class. Every Office app satisfies two important demands for Microsoft’s large and diverse customer base: It’s simple for novices to grasp but offers enough deep features for people to develop undying bonds of affection and expertise. The more you use Office, the better you get at it—and the less likely you are to use anything else.
Sometime next year, Microsoft will put out Office 2010. The suite has been available as an invite-only preview for several months, and this week the company launched it as a public beta—you can download the entire program for free here. A Microsoft rep recently gave me a walkthrough of the new version, and I was impressed.

Office 2010 offers lots of new features and several user-interface improvements over previous versions. One nice addition allows you to preview how text or images you’re copying will look before you paste them. (Watch this video for a better idea of how this works.) Microsoft has also expanded the "ribbon" interface first seen in Office 2007—the tab bar across the top of the screen that replaces the cumbersome drop-down menu commands found in old versions of Office. The ribbon takes a bit of time to learn, but once you get the hang of it, it speeds up a lot of what you do in Office. Perhaps most importantly, Microsoft has built several collaborative features into the new Office. Co-workers can now simultaneously edit Word and Excel documents—something that many people now turn to Google Docs to do.

Still, as I tested out the new version, I couldn't help wonder about Office's future. In its last couple of earnings reports, Microsoft has reported rare declines in revenue from sales of Office. The company blames the sluggishness on weakness in the economy—a reasonable explanation, though one that perhaps masks a larger malaise. For one thing, Office's success has bred a kind of inertia. Once you've grown used to a certain version of Word—and can do pretty much everything you need to do with it—why would you ever need the next version? I toiled away in Office 2003 until the summer of 2009. I recently switched to Office 2007, which I like very much—but I'd be lying if I said it substantially changed how I worked or that I'd be greatly hassled if I were forced to go back to 2003.

Office also faces increasing competition from cheap online alternatives like Gmail and Google Docs. To be sure, Office users aren't leaving in droves for cloud apps, but these programs do pose a long-term threat to Office's hegemony. As Web rivals get better at mimicking Office's basic functions, they will likely eat into Microsoft's share of entry-level users. There might be 500 million Office users around the world, but there are a 1 billion Windows PCs. In other words, there's still an untapped market for productivity apps—and Office's future may lie in its ability to win over those folks before they flock to the Web.

One way that Microsoft hopes to attract the uninitiated is with a new free version, Office Starter Edition. This stripped-down Office freebie—no "track changes" mode in Word; no
pivot tables in Excel—replaces Microsoft Works, the productivity suite that the company long marketed as a kind of gateway into Office. Starter Edition won't be sold in stores; it will only ship on new computers and will be supported entirely by a small ad that's displayed on the side of the screen. The ads don't look very annoying, though it is worth noting that Google Docs carries no advertising. Office Starter Edition, on the other hand, looks and feels pretty much like Office—meaning it's very easy to learn, and it's faster, more stable, and has a better user interface than Google Docs.

But that's not all: Microsoft is also building a collection of very good Web versions of each of the Office programs that will compete directly with Google Docs and the like. The Web apps will appeal to two audiences. First, just like Google Docs, they function as limited-featured productivity programs for folks who don't want to pay for full software. But if you do own Office, the Web apps extend your capabilities. You can create a Word doc on your full version of Office, then open, edit, and print that document anywhere else in the world—even on computers that don't have Office. Google Docs can be used this way too, but Docs sometimes has trouble displaying very complex Office documents; the Office Web apps hold out the promise of displaying Office documents exactly as you'd intended them to look.

So the next version of Office looks to be an improvement on the 2007 edition—and with the Starter Edition and great new Web apps, it could even succeed in staving off competition from free online rivals. That sounds great for Microsoft, except for one thing: In trying to win the war against free apps, Microsoft will have had to emulate them. You used to have to pay several hundred dollars for a copy of Office. Now, you don't really have to. Online and in new computers, Microsoft will give away a slate of productivity apps that, for most people, will be good enough. And thus, the question remains: Does anyone really need to buy a new version of Office anymore?