

EMERGING TECHNOLOGIES SHOWCASE WEBINAR: 2013 IT TAG: DATA CENTERS: IT EQUIPMENT & POWER MANAGEMENT

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Question and Answer session

Q: An Energy Trust program already incentivizes server upgrades that take the leap to substantially greater processing capability (MIPs) so the customer can greatly reduce the number of servers along with the HVAC load. Do you know if any other acquisition programs around the country are allowing this type of measure?

A: *[Mike]* Good question. I do not know. I know PG&E tried something like that a few years ago and had trouble with their evaluator on that. It's a tough issue. Energy Trust is in a unique position because it's not a utility. Other utilities have found that it's challenging to do this because of the concern about how you define free ridership. In general, the best practice in the industry is that servers need to be refreshed less than every three years and some have even implemented standards of two years. So, there are definitely energy savings but there is also a concern of increased pressure from manufacturers and sellers of servers trying to promote that. Whether or not a utility can provide incentives to do "refresh" is more of a political issue with the utility commission than it is a technical issue. There are definitely energy savings per processing capacity.

Q: Can you talk about desktop virtualization.

A: *[Mike]* Let's look at this whole concept by going back in history when there were mainframes and portals. This was back in the eighties or before. The terminal then was really just a keyboard and a screen tied to a mainframe. With the advent of the personal computer everyone moved away from that. And now with the advent of the cloud and the virtual environment people are moving towards tablets and the concept is shifting back to wondering if we even need the hard drive and memory and applications stored on individual laptops. Google is a big proponent of this because it matches their business model of having a really cheap device that may be purely a screen and some sort of data entry (perhaps a touch screen or keyboard), eliminating the hard drive, having a much simpler processor, reducing the memory, and having all applications and data stored on servers and in the cloud. That's kind of the concept of the virtual desktop. It's shifting back into a centralized repository with information-access terminals similar to the old concept of the mainframe versus terminal. That definitely reduces energy consumption at individual terminals. But is that something that you can put in

a utility program? It's very much a business model, Google is very much for it. Microsoft is very much against it.

Q: How far away from market is Fibre Channel over Ethernet (FCoE) based equipment? How far away would the first prototypes be that would need demonstration in the field?

A: *[John]* That equipment is available now. It's being deployed currently in places as a bridging technology to allow people currently operating SANs to migrate over to an IP-based storage system. So, if they wanted to take their existing SAN and portal it into the IP network they can use an FCoE protocol available from almost every vendor. It's available now to do that.