

Datacenter Efficiency – IT Equipment

Abstract, Andrew Sharp, 07/29/14

It's not hard to find papers and presentations on the topic of datacenter efficiency that solely address infrastructure efficiency gains. Cooling, power distribution, maintenance. Even tricks like piping the heat generated by the IT equipment to the backup diesel generators in lieu of electrically powered crank case heaters.

But almost no one talks about how to improve datacenter efficiency by focusing on the source: the IT equipment itself. It may be because there's often a split of responsibility between the facilities and data processing kingdoms, or because many IT equipment buyers aren't told to factor efficiency into their requirements (and likely not rewarded for achievements in that category). But the most likely reason is that, like just about all of us, the model for buying IT equipment – especially servers and storage – has always been to buy the highest performing equipment available that fits within the budget. And because of that, buyers have long been accustomed to selecting products simply by the price.

This presentation will focus on how recent technological advances, combined with environmental and costs concerns, are forcing a change to the way we think when it comes to selecting IT equipment. How can datacenter operators, architects, IT buyers, and even IT suppliers, change their thinking, take advantage of new products in the market place, and realize dramatic power and therefore cost efficiencies in their datacenters?

Main topics:

- Methods, including examples, of calculating overall datacenter costs, not just IT equipment purchase price.
- How, and why, should the current thinking on IT equipment sourcing change?
- In-depth examination of how selecting equipment by efficiency, rather than \$/GHz can have multiple knock-on advantages far beyond the ability to halve operating costs: lower equipment purchase costs by taking advantage of utility incentives; reliability advantages result in higher uptimes, better SLAs, less maintenance costs, lower head count; and infrastructure cost savings.
- How to tell if a server is actually efficient, regardless of manufacturer or even industry claims. The claims of OCP (Open Compute Project), self-styled “efficient” servers offered by the larger industry players, new products in the industry, and fringe offerings will all be closely examined.
- How does one source efficient IT equipment? Since the industry really isn't behind this yet, there's no MPG rating for IT equipment. How to test and evaluate IT equipment for efficiency will be outlined.
- Running the numbers: how does it all add up? Buying efficient IT equipment means not buying the same old thing, so one-to-one comparisons between servers, switches, storage aren't going to be useful. How then do we figure out the two important questions: will the equipment meet the user requirements, and what will the end result look like in the datacenter?