HP's Project Moonshot: Did they hit the Target?

Background

HP has been working on a project called "Moonshot" for the last several years. After providing prototypes and some early installs in 2012, they are introducing the first part of the product line. Of course, the name of the project invites comparison with the attempts in the early 1960s to send a rocket to the moon.

> Generally speaking, we are not in favor of vendors overstating the importance of their initiatives by labeling them with names reminiscent of significant past historical epics and events. However, in this case, we admit the name to be well chosen. These HP systems could potentially revolutionize the server industry. Time will tell.

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Time for a Change

HP argues that the server industry badly needs to change course. Why? First, HP points out that we are facing a great deal of growth over the next decade. World population is on a path to grow to over 10 billion people. This will result in an enormous expansion in the amount of data to be stored in computers, specifically in servers. For example, cell phones and other mobile devices will increase to the point that estimated forecasts say that each person will have two or more mobile devices. Every one of those devices can and will generate an enormous amount of text and video data. We think that the growth that HP is projecting in this area is inevitable.

> However, in our view, growth in other areas is a bit more problematic. The growth in the "internet of things" is not as guaranteed. One easy example is the growth in the number of smart meters that will monitor the use of electricity. Such devices, already installed, run into significant consumer resistance. Nor, is it clear all that data will be collected or used. We do not believe the average consumer will be enthusiastic about the expense of attaching appliances e.g. refrigerators, to the internet. Still, it is likely that all future automobiles will connect to the net.

HP's next argument is that the industry cannot accommodate the expected growth in the number of servers required by simply adding to the existing number of servers. The growth of just the power and space requirements necessary to support additional data centers would be enormous[1]. Today's technology will not work. Therefore, HP concluded that a new type of server is needed. We think that HP's argument for such a change is a good one.

HP's 1500 Chassis

Thus, HP is introducing a new breed of server. They defined a new chassis, the Moonshot 1500 to support what HP calls "the world's first software defined server". This chassis allows the customer to install as many as 45 hot plug cartridges. Each cartridge could be a complete system, including storage or the cartridge might just contain storage. In the future there will be many varieties of

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[1] HP points out that the cloud today is the fifth largest user of electricity in the world. If we could cut cloud usage of electricity in half we would save the equivalent of the electricity usage of the UK.

cartridges, but for the moment HP is announcing one type based on an Intel Atom microprocessor. HP claims this design offers the following benefits:

- These servers cost 77% less than conventional HP ProLiant servers.
- They will take 80% less space.
- They will use 89% less energy.
- They will be 97% less complex.

The first Intel Atom cartridge targets dedicated hosting workloads. It is a dual-core Atom processor with 500GB or 1 TB of storage. There is also an SSD storage option. Several flavors of Linux, including Red Hat, Ubuntu, and Suse are available. Pricing begins at $61,875 for the enclosure, 45 HP ProLiant Moonshot servers and an integrated switch.

The term "software defined server" can be looked at in several ways. For HP, it means that the ultimate software environment will influence the configuration of the Moonshot server. HP's use of the term does not mean that the software can dynamically define or redefine the hardware. Instead, the customer will now have the ability to target (and define the configuration of) the server at a specific software environment.

For example, if the application is high performance computing, they can choose a cartridge containing a microprocessor that supports such computing. On the other hand, if the application is for web processing, they will need to select a cartridge tailored just for web processing.

Features

We believe a major strength of this design is that the chassis allows all systems to share power and to be managed centrally. Further, the network uplinks and fans avoid a single point of failure. Within the chassis, a cluster fabric allows high speed inter-server communications. As mentioned, the servers are tuned to specific workloads. We expect to see web front end, Big Data, desktop support and other specific applications eventually offered.

Futures

In the future, Quad servers will be available that support up to 180 servers in a single chassis. Over time, we would expect that Moonshot systems with their price performance advantages will eat into (reduce) the demand for standard ProLiant servers[2]. It will be interesting to see how HP manages the revenue challenge that this may present.

The Final Word

We view Moonshot as a highly promising technology as well as potentially significantly profitable. However, it will take time to mature as its success depends upon the ability and willingness of customers to accurately define the applications they plan to run on the servers more precisely than is typically done today. We believe that during this introductory period, HP will have to do much hand holding with early customers. They must do so to assure that application needs are

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[2] We tried to look up Moonshot 1500 prices today (4/24/13) without success. Attempting to find additional Moonshot information on HP's website usually ends up at ProLiant data. HP has some work to do on its web site regarding Moonshot. There was some representative prices in the press release but we still think that the web site needs work. Press releases may go away but the web site will still be used.

defined in sufficient detail to guarantee that the ordered Moonshot systems will meet its (the application's) requirements.

Still, the strategic move to provide highly efficient systems that are specifically tailored to the requirements of the customer and application yields significant benefits to all involved parties. There is no doubt that the upward trend in the demands for power, performance, space, capacity and environmental efficiency in multiple dimensions will pose increasingly difficult challenges to meet and balance conflicting priorities for scarce resources. Moonshot clearly has the potential to resolve these challenges.

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