Performance 2

Raspberry Pi

Titel:

Modularity and performance of mini data centers of the future using the raspberry pi

Questions

What are the advantages and disadvantages of a ARM processor compared to an Intel processor?

What are the difficulties for cooling in a data centre?

What is the performance of colocation of a raspberry pi?

How hot does a raspberry pi cluster get without cooling, what is the maximal temperature a raspberry pi can handle?

How does the server operate if we turn one raspberry pi in the cluster off?

What is the performance drop because of that?

Software hazelcast:

“The software can be configured in a fully replicated mode which means that you can take out any combination of data centers and the application will continue to hum along nicely,” said a company rep. “This is for full data center redundancy and simulates disasters like, say a nuclear attack against your Network Operations Center.”

In-Memory Data Grid

**Scale-out Computing:** every node adds their CPU and RAM to the cluster, which can be used by all nodes.

**Resilience:** nodes can fail randomly without data loss while minimizing performance impact to running applications

**Programming Model:** a way for developers to easily program the cluster of machines as if it were a single machine

**Fast, Big Data:** it enables very large data sets to be manipulated in main memory

**Dynamic Scalability:** nodes (computers) can dynamically join the other computers in a grid (cluster)

Elastic Main Memory: every node adds their RAM to the cluster’s memory pool

 some pundit is claiming the PC is dead—being replaced by the duo of tablets and smartphones.

Many users are simply looking for entertainment rather than serious content-creation capability, so a tablet or smartphone (or both) may offer a better option than a PC

data center industry’s growing portion of world energy production. As calls for greater efficiency crescendo, ARM seems well positioned to strike into the heart of Intel’s realm. The question, however, is whether a lean, fit ARM processor can handle the heavy lifting of the beefier Xeon processor.

“today, energy and power are the primary design constraints.”

neither the ARM nor x86 instruction-set architecture (ISA) is fundamentally more efficient. How these ISAs are implemented (the microarchitecture) affects efficiency, but this implementation is a design choice that involves a tradeoff: “ARM and x86 implementations are simply design points optimized for different performance levels.”

confirms that neither ARM nor Intel (x86) has a fundamental advantage that could give one or the other dominance across all markets. Instead, each company has historically focused largely on one design consideration: efficiency or performance—typically at the expense of the other. As Intel tries to increase the efficiency of its offerings and ARM tries to add more performance, the two companies are likely to meet somewhere in the middle. Design skill may determine who gains a slight edge, but neither will offer a single chip that does all things well.

tablets and smartphones running ARM

desktops and laptops running x86