

What The Cloud Doesn't Do

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We're at a technological inflection point, a major branch of computing is splitting off and everyone from the sysadmin to the CEO is wondering what it will mean.

The usual cabal of vocal technologists isn't helping the situation. The chatterboxes maintain a constant chant of change: "Cloud, Cloud, Cloud!" Yet they fail to contextualize it in the overall IT architecture. They imagine a bright future where all servers will hum along in ultra-efficient datacenters (preferably solar powered) diligently tended to by the infrastructure-as-a-service providers. Why would you ever host your own server?

IaaS is progress and cloud computing makes everything else obsolete. To suggest otherwise is to be labeled a Luddite.

Yet reality doesn't mesh with this simplistic vision. Real companies face much more complex compute infrastructures that still include self-hosted virtual machines and physical servers. And those on-premise machines aren't going away. IT professionals are adding to their compute portfolio and require ever better tools for managing this increasing complexity.

The cloud doesn't replace on premise computing, it adds to it.

This is how technology truly evolves. Many people believe in orthogenetic evolution, a singular march from hunched over ape to intelligent man. But a better conceptualization of the high-level concept is that of a branching tree. Some portion of an existing family heads off in a new direction and all the families continue changing, but in different directions.

Broadcast television split off from technologies derived from radio. And both technologies have continued to evolve. Television got the VCR (1976), TiVo (1999), HD (1996) and Blu-ray (2003). Radio got FM the transistor (1954), stereo (1961), satellite (1963), XM (2001) and podcasting (2005). Radio didn't stop functioning or evolving when television came out, but the two technologies did carve out different habitats in people's media-consumption universe: TV at home, radio in the car.

Computing is the same way. There are many, many companies operating mainframes, despite the perception that it was killed off by client-server architectures. Love your flash memory? Somewhere someone is spinning tape-based electronic storage. And they do it with good reason. Mainframes are quick, proven, secure and reliable. They've been optimized for mission-critical applications such as payroll. Tape-based storage is cheap as dirt and may be used for compliance with archiving regulations.

Now cloud computing offers another option for IT architects to put in their arsenal. It's great for applications with uncertain processing loads, for rapidly ramping infrastructure and for startups who want to pay as they go. But if you have to worry about PCI and HIPAA compliance, you're not taking your data outside your firewalls. Got applications with specific hardware requirements, like powerful processors to handle graphics? You may not even want to virtualize, let alone go to the cloud.

As the number of compute options increases, so does complexity. You have to think carefully about your requirements, consider the tradeoffs and plan accordingly. You also have to set up systems to help you manage this highly heterogeneous infrastructure and tame the complexity. The evolution of IaaS gives IT architects unprecedented choice and power. Smart companies are moving fast to take advantage of it and the ones that miss out are apt to go extinct.

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