

# **What Will a Next Generation Data Center Look Like? - IO**



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## What Will a Next Generation Data Center Look Like?

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The term “next generation data center” is heard frequently these days. But what exactly is a next generation data center? What will it look like? What will it contain? How will it function?

Opinions vary, of course, but it looks as if tomorrow’s data centers will share at least eight basic characteristics. Here’s a quick rundown of the attributes that will define data centers in the years ahead:

- 1. An Off-Site Location.** Outside of some fairly rare exceptions, it doesn’t make sense for a data center to be placed at the same location as an organization’s main business offices. There’s really no need for IT systems to take up expensive downtown or business park real estate. Broadband networks make it easy to transport data anywhere, as well as to remotely manage systems. A shared off-site location provides a long list of benefits, including lower costs, strong security and efficient and reliable power and environmental controls.
- 2. A Flexible Environment.** Tomorrow’s data centers must be ready for rapid and unpredictable changes driven by dynamic business demands as well as market and regulatory pressures. This means that data centers must be placed in locations that can be painlessly expanded or contracted depending on technology and business changes. Using a colocation site is the most logical way of meeting this need.
- 3. Increased Virtualization.** If you think you’ve already heard everything you need to know about virtualization, guess again. In fact, server virtualization was only the first step. Next on the agenda is storage virtualization and then the virtualization of virtually everything resource you can think of, from networks to disaster recovery.
- 4. A Greener Design.** The next-generation data center will have to be much more efficient than today’s version, if for no other reason than the fact that

energy costs are likely to skyrocket in the years ahead. This is another strong reason for locating a data center in a colocation facility, where basic resources can efficiently and cost-effectively shared.

**5. More Modularity.** Data centers are already very modular, particularly when one considers how relatively disorganized they were just a decade or so ago. Since modularity leads to efficiency and lower costs, and with virtualization and rising technology density enabling ever more compact system deployments, it's likely that future data centers will become even more modular over the next few years.

Microsoft recently took modularity to the extreme when it unveiled its **ITPAC (IT Pre-Assembled Components)** vision. In the years ahead, according to Microsoft, data centers won't be located in huge buildings tightly packed with server racks, but rather in rows of small, naturally-cooled barn-like units spread across many acres of cheap land. Such facilities could be managed like today's colocation sites, only with everything spread out over a large area rather than concentrated inside a single building. It's an interesting concept.

**6. Increasing Adoption of Orchestration Software.** Some observers have described orchestration software as an "operating system for data centers." But that's probably an exaggeration. The technology does, however, give organizations the ability to reduce the time, cost and risk of data center management by automating most IT processes. Orchestration software can include incident resolution, change coordination and routine maintenance tasks that are standardized and documented. A number of vendors, including HP, Novell and VMware are already offering orchestration-oriented products.

**7. More Security.** Like it or not, the real and virtual worlds are becoming increasingly less stable and more unpredictable. This trend will likely lead to stronger logical security measures in the form of enhanced security software and appliances. Businesses are also beginning to pay more attention to physical security threats to their IT infrastructures, a trend that's leading more organizations to highly secure shared facilities.

**8. More Reliability.** Today's trend toward automatically managed "lights out" data centers is leading to facilities that are far less trouble prone than their predecessors. That's great because, whether or not we humans are willing to admit it, most data center downtime is the result of process errors and operator mistakes, not equipment failures.

Tags: Data Center Security, Next Generation Data Center, virtualization

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