Meeting Workforce Demands
Why—and How—IT Should Modernize End-User Computing

IT'S NEVER BEEN EASY FOR IT TO SOLVE THE CHALLENGE of end-user computing. With the dawn of client-server computing, options blossomed: PCs, terminals, diskless computers and, not long after, laptops. But today, thanks to a tectonic change in end-user computing, IT has a far broader spectrum of devices to manage.

Today, the balance of power has shifted to the users. It's not just a question of allowing users to bring their own devices; the range of devices that users demand, even if supplied by the enterprise, has grown to include not only the list above (with diskless computers morphing into virtual desktops), but smartphones, tablets, netbooks, and more—not to mention their requisite operating systems and applications.

What's more, the flexibility that these new devices bring have sparked a number of trends marking significant change in the way end-users work. These trends co-exist with the same challenges IT has always faced: maintaining security and control; reducing demand on IT resources; and improving end-user productivity. Together, though, these issues mean IT departments face unprecedented challenges in keeping both IT and end-users efficient and productive.

Four Burgeoning End-User Trends

These new demands from users are not outrageous. They bring new levels of productivity, and the increased power and capability of tablets and smartphones means that these devices are no longer second-class in terms of features and functionality. To accommodate these demands, enterprises must rethink how they provide support to employees.

CIO

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Trend No. 1: Personalized self-service. When end-users visit a consumer web site, or an app store, they can download what they seek and start using it immediately. Now they want to do the same thing with enterprise applications.

At the same time, application deployment should be personalized: it should reflect users' roles within the enterprise, eliminating confusing features they don't need and making the features they do need clear and usable. But to address this trend, IT departments must develop methods—primarily through standardization and automation—that allow them to seamlessly manage all applications without burdening IT resources further.

Trend No. 2: Application neutrality. The boom in virtualization has helped end-users understand that there are ways to use almost any application on any device. While mobile apps have begun to supplant full-fledged applications, even the most forward-thinking enterprise still has data residing in Windows- and other OS-based applications, and those legacy applications aren't going away. To address this need, IT departments need to seamlessly manage all applications.

Of course, there will always be legacy applications, because organizations have made significant investments and it's not realistic to scrap them and replace them with new technology. Instead, organizations need solutions that can help them manage their existing environment, which is typically a mix of legacy technology, consumer technology that end users have brought into the environment and new investments.
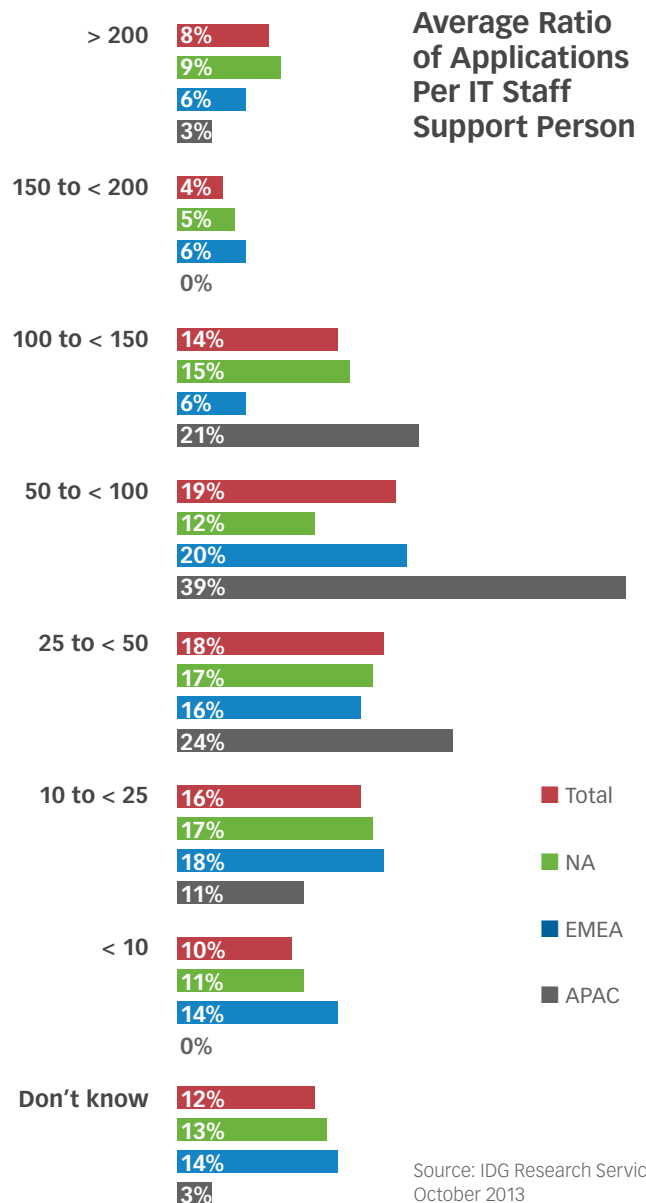
Trend No. 3: Demand for collaboration. In a recent IDG study conducted on behalf of VMware, one-fifth of respondents are looking to outside providers for collaboration applications—that is, ways of communicating quickly through email, phone, videoconference, audioconference, instant messaging and more—instead of going to IT. The most common reasons for these types of shadow IT projects? Faster service delivery, better expertise and lower costs.

If getting work accomplished truly is the overall goal, then end-users can't be hampered by technology—whether they're communicating with colleagues, customers, partners, or suppliers. That means ensuring that they can exchange data and collaborate across multiple channels.

Trend No. 4: Cloud and SaaS applications. To provide for many of these end-user demands, IT departments have increasingly begun taking advantage of the opportunities presented by cloud delivery options and desktop-as-a-service/software-as-a-service vendors. With the right kind of network connectivity, end-users from within and beyond

an enterprise can download and leverage applications and virtualized desktops easily and efficiently.

But at the same time, IT needs to rethink how it offers these new capabilities. Unfortunately, as has always been true in technology, providing simplicity at one level leads to complexity underneath. With the growth of cloud-based applications and desktops, along with legacy enterprise applications, IT has an increasing number of end-user applications to manage. A second study sponsored by VMware and conducted by IDG Research Services shows that on average, each IT support staff employee is responsible for approximately 73 applications. Thus, IT must figure out how to avoid sacrificing the efficiency of its own resources in order to increase that of its end-users.

Average Ratio of Applications Per IT Staff Support Person

	Total	NA	EMEA	APAC
> 200	8%	9%	6%	3%
150 to < 200	4%	5%	6%	0%
100 to < 150	14%	15%	6%	21%
50 to < 100	19%	12%	20%	39%
25 to < 50	18%	17%	16%	24%
10 to < 25	16%	17%	18%	11%
< 10	10%	11%	14%	0%
Don't know	12%	13%	14%	3%

■ Total
■ NA
■ EMEA
■ APAC

Source: IDG Research Services
October 2013

It's no wonder that IT's traditional management process is stressed to the breaking point. According to the second IDG Research Services study, IT is overwhelmed by end-user computing administrative activities.
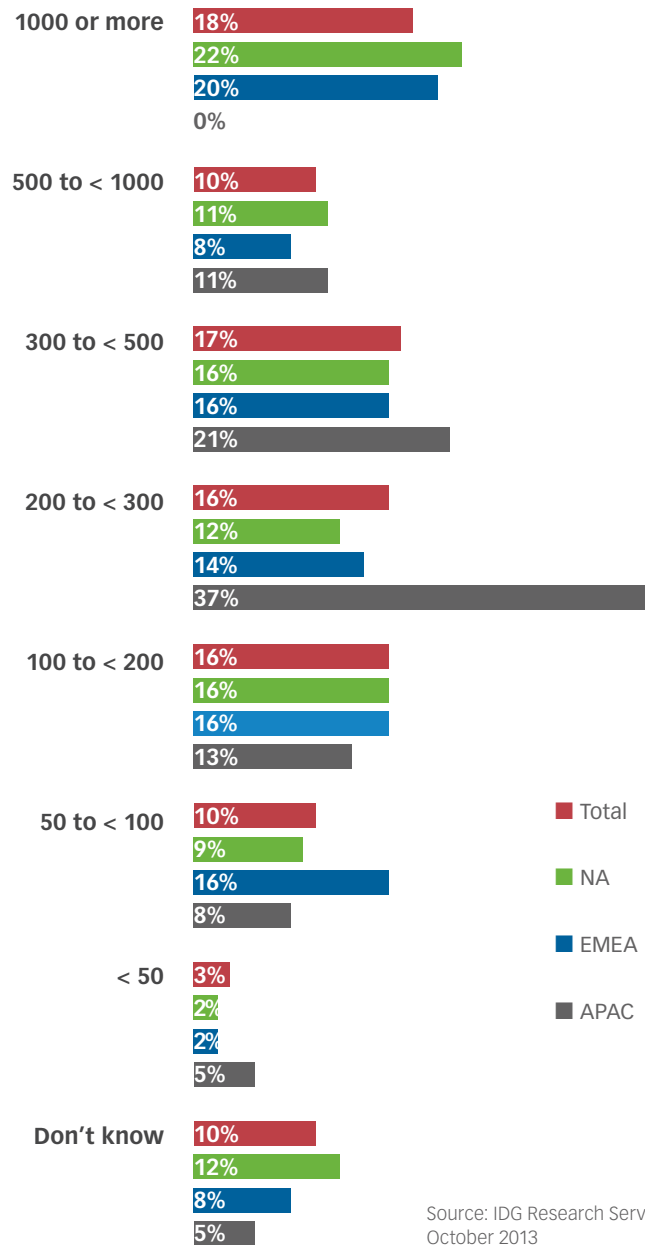
The CIO Challenge

So how can organizations tackle these trends in a way that takes into account both what users need and what IT can deliver? Even as CIOs need to accommodate business users, IT is still responsible for its own realm—ensuring its own productivity and flexibility, maintaining security and control, and reducing costs while still increasing efficiency.

The traditional approach of mapping one user to one technology paradigm—desktop, laptop or mobile—does not work anymore, for a variety of reasons. For instance, more enterprises are adopting bring-your-own-device (BYOD) policies for mobile devices. That means IT must support not only a primary device for many users but also a secondary device. Frequently, users also demand access to mission-critical data from both devices.

At the same time, users require access from these devices to different back-end systems: legacy applications, private clouds and public clouds running SaaS applications. This creates a matrix of complexities relating to a multitude of ongoing IT issues: integration, security and collaboration.

It's no wonder that IT's traditional management process is stressed to the breaking point. According to the second IDG Research Services study, IT is overwhelmed by end-user computing administrative activities. According to respondents that are global IT executives, a single IT administrator is responsible on average for 441 devices, and they spend eight hours managing a single device. And that's when IT actually has access to a device. The survey also revealed that on average, 30 devices are lost or stolen each year, and it takes two days to replace a lost or stolen device.
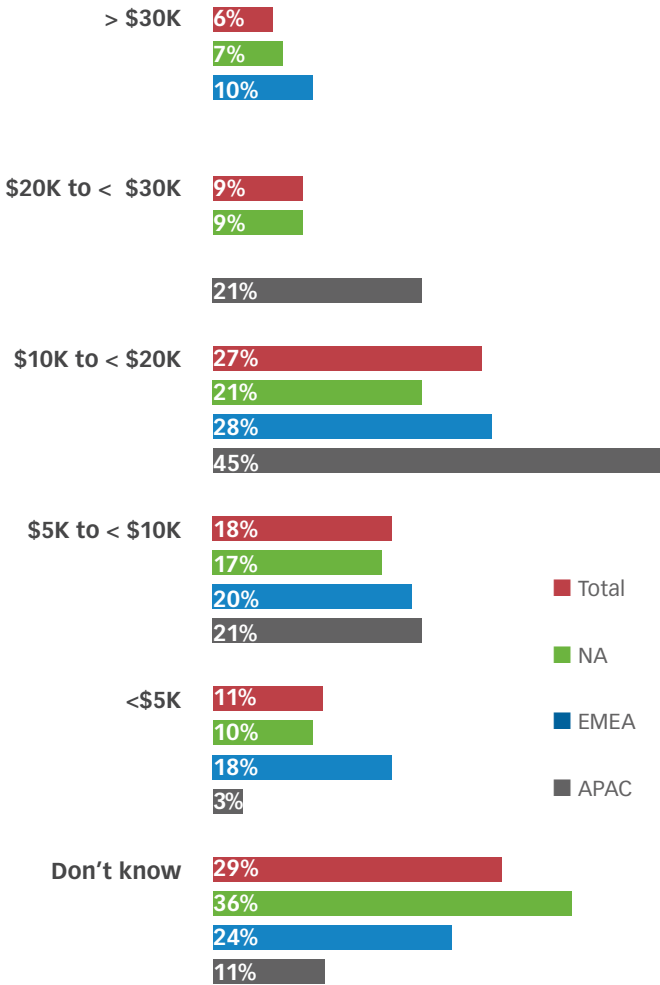
Average Number of Devices Supported Per IT Admin

	Total	NA	EMEA	APAC
1000 or more	18%	22%	20%	0%
500 to < 1000	10%	11%	8%	11%
300 to < 500	17%	16%	16%	21%
200 to < 300	16%	12%	14%	37%
100 to < 200	16%	16%	16%	13%
50 to < 100	10%	9%	16%	8%
< 50	3%	2%	2%	5%
Don't know	10%	12%	8%	5%

Source: IDG Research Services
October 2013

All of this adds up to a lot of IT resources being expended simply to manage an increasing number of end-user computing activities. On an annual per-user basis, this translates into an average cost of $12,220—somewhat less in North America, somewhat more in the Asia/Pacific region.

Approximate Operating Expenses Per End User Per Year

> $30K
- Total: 6%
- NA: 7%
- EMEA: 10%

$20K to < $30K
- Total: 9%
- NA: 9%
- APAC: 21%

$10K to < $20K
- Total: 27%
- NA: 21%
- EMEA: 28%
- APAC: 45%

$5K to < $10K
- Total: 18%
- NA: 17%
- EMEA: 20%
- APAC: 21%

<$5K
- Total: 11%
- NA: 10%
- EMEA: 18%
- APAC: 3%

Don't know
- Total: 29%
- NA: 36%
- EMEA: 24%
- APAC: 11%

Legend: ■ Total ■ NA ■ EMEA ■ APAC

Source: IDG Research Services
October 2013

The clear upshot from these results: IT needs help with a variety of issues within end-user computing. These range from application management and deployment to image management (i.e., the compilation of OS and application images for devices for fast download) to ensure secure and cost-effective access to data for the increasingly diverse use cases of their workforce.

That is, IT must think about the simplicity it offers end-users and apply it to its own internal work processes. It's an assiduous effort to understand how IT can serve end-users with processes that are as automated and preconfigured as possible. That way, end-users get fast access to the capabilities they need without overwhelming IT resources. Otherwise, costs and complexities are only going to increase.

CIO Best Practices: What's the Answer?

For CIOs to address their end-user computing challenge, they must adopt a number of new tactics, They must rewrite the rules for how they deal with end-user computing in order to make it more manageable and less complex. "The virtual office and the brick-and-mortar office have become one in the users' minds," says Noel O'Connor, CIO of Sylmar, Calif.-based Anthony International, the world's largest manufacturer of specialty display and merchandising systems. "Their expectations are different, too. They use all sorts of apps on their personal devices, and they want to know why they can't have the same utility in the workplace."

Fortunately, in changing their thinking, IT executives can not only improve their service to the business, but also reduce stress and demands on their own IT department.

Here are four key best practices for tackling the new end-user computing landscape.

1) Focus on the business units rather than the technology. What does each business unit need from its end-user devices? What kind of data does it need to access, and on what devices? Is establishing a BYOD program a necessity or an option?

In the IDG Research study, the general consensus among IT executives was that IT is not brought into the process early enough when new services or products are requested. Instead of telling IT exactly what to provide, IT executives agree that they should be brought into the loop earlier to understand what the business needs versus what they think they need.

Once these baseline needs have been identified, establish clear benchmarks for successful data access from employees. Revisit those goals on a periodic basis to ensure IT is still serving each business unit's evolving needs, as well as serving the enterprise's security parameters.

For Brooks Moore, director of technology for the Aledo Independent School District in Aledo, Texas, serving 5,000 students on nine campuses, the business needs were purely financial. "We can't afford to replace our technology without a bond issue, which we haven't had since 2008," he says. "We had to figure out how to do more with less."

That involved converting legacy hardware to virtualized thin clients for students to use in the computer labs. "It's almost like working on a brand-new computer," says Moore. "All

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—Edward Ricks
CIO, Beaufort Memorial Hospital

the processing is done back in the data center on high-end processors."

2) Establish a new engagement model with stakeholders. Once CIOs have established what each business unit needs, they should segment users accordingly in order to understand their use cases. For instance, devices used by employees on a factory floor will require both mobility and reliability, but because they're networked, they may require less-stringent security features than those used by salespeople over WiFi in coffee shops.

IT can then develop catalogs of services for specific users so they can download approved applications, without allowing access to applications they don't need. Even better, end-users can download these applications automatically, without IT having to configure them. That level of automation gives end-users faster access to applications and reduces the burden on IT resources.

"We want to offer our users the experience of having access to data when they need it," says O'Connor. "We want to keep policies and procedures in place, without making them feel as if they have go to through too many channels. It's almost like taking IT out of IT and making everything easier for the user."

Understanding the who, when and where of particular departments will also help organize IT efforts. Having identified and prioritized the needs of users, CIOs can then rank those demands based on their impact on the business: on revenue, brand reputation, customer service and more.

Armed with this information, CIOs can develop true partnerships with the line of business, setting up commitments so that each side understands the other's needs. This process also helps IT identify users within lines of business who have

downloaded or accessed unauthorized or unapproved apps, opening up communications regarding those apps' utility and necessity.

3) Take a holistic approach to tackling these goals. One of the drawbacks of maintaining a "one device/one user" paradigm is that it denies IT a broader perspective of all the issues. In order to ensure success with end-user computing, IT must take into account four key areas: architectural readiness, organizational readiness, operational readiness and application readiness.

This end-to-end approach delivers multiple benefits. It not only shows enterprises how to leverage their existing technology investments, but it also provides a much-needed perspective into how all the end-user usage scenarios fit into the enterprise's operations and architectural foundation. This goes a long way to identifying areas of infrastructure that need to be upgraded to accommodate end-users' evolving needs.

At Beaufort Memorial Hospital in Beaufort, SC, CIO Edward Ricks used virtualization to simplify the work of the hospital system's 2,000 internal and external employees, both clinicians and IT staff. "End-user computing became a big

topic for us when we adopted electronic health records a few years ago," he says. Ricks wanted it easy to use so that there would be no barriers in the clinicians' adoption of it, but he was also able to accommodate IT security issues by eliminating PCs where employees, patients and families could access them.

In addition, he notes, "there's very little you can do to bring down a virtualized machine. We got away from the 'break/fix' mentality and spend more time thinking about the infrastructure than the individual machines. It changed the way we support people, taking away a lot of busy work."

Brooks Moore concurs. "Going to a virtualized environment has really taken a lot of the load off of us from a 'boots on the ground' standpoint," he says. "We can fix the majority of problems from the office rather than driving out to the schools, so we don't have to coordinate who's going to put out which fires."

When asked what fundamental changes IT is making over the next two years to enhance its role as an internal service provider, respondents to the VMware survey mention consolidation, standardization and streamlining of processes as common first steps. For enterprises that have intentionally or unintentionally created silos among its service areas—servers, networks, storage, end-user computing—this is an opportunity to break down those silos and distribute resources on a more-cohesive basis. Doing so helps IT understand where to deploy resources for the most viable scalability.

4) Experiment fast, fail fast. In this day and age, IT can't maintain a release schedule based on years rather than weeks or months. CIOs must be willing to work fast, identify success or failure, and then remediate. They can't be afraid to launch and learn. Moving fast begins to reveal clearly where internal gaps might exist and how they can be addressed.

"The days of the ribbon-cutting ceremony for a big application rollout are over," says O'Connor. "You need to get to the value proposition earlier and quicker. You need to execute

in three-, six- and nine-month increments, not three years. That's the only way you can realize return for the business."

This is where cloud service providers become increasingly valuable, whether through IaaS, PaaS or SaaS. They all allow IT to set up test environments quickly, leverage new technologies and determine their viability within the enterprise. According to the IDG survey, 29 percent of responding companies have IaaS projects underway, while 27 percent have PaaS projects underway. When those pilots are complete, CIOs can bring those technologies in-house or set up a long-term contract with a XaaS provider.

Maximizing Agility

Following these precepts allows enterprises to maximize agility. Ideally, before long enterprises can identify their strengths and weaknesses in each area in order to determine whether a particular service should be offered internally or procured externally. To determine this, CIOs should look at multiple issues. These include: budget, particularly the viability of capital investment versus operating expense staff resources and skills, especially regarding how difficult it would be to hire for in-demand skills, versus relying on a cloud service provider and the ultimate competitive advantage the enterprise could derive from developing capabilities in that specific area.

Ultimately, by taking a holistic viewpoint, CIOs can better develop a wider, clearer perspective on how various end-user computing needs and demands impact the overall enterprise. This perspective helps them better understand how a seemingly simple request—giving an end-user access from a tablet to increase their productivity—impacts all the architectural facets of the enterprise, from the network to the applications to the device itself. At the same time, that perspective helps IT educate the business to better understand how the needs of the one impact the access of the many.

Together, with a more insightful and educated relationship, IT and the lines of business can work together to make both more efficient at their work. ∎