


5 STEPS

TO IMPROVE THE END USER
EXPERIENCE & THE BOTTOM LINE



& why the end user
experience is king

5 Steps to Improve the End User Experience & the Bottom Line



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Business Impact of a Poor End User Experience



How much does the quality of your end user experience impact your brand, your revenue, your morale and ultimately your bottom line?

End User Experience: The Ultimate Metric

**There is a special section for Small Businesses on page 10*

Employee productivity is typically a very important factor in what ultimately makes its way to the bottom line for a business. A quick Google search of the term “how do we improve employee productivity” confirms that fact with over 27 million results and pages of research documents making this correlation dating back to 1980.

In many cases it is safe to say that the employees are the business. So what are we doing to improve employee productivity and by extension, the business?

Today one of the primary productivity enhancing tools of choice is technology. CIO magazine reported in 2010 that IT budgets represent an average of 5.7% of company revenues, with IT staff to employee ratios averaging 1 IT employee to 30 line-of-business employees.¹

We continue to incorporate a staggering amount of technology in efforts to make our organizations faster and more efficient. One of the primary vehicles used to introduce new technology into the work environment is through applications.

Today the average company we work with has an average of 100 applications in their environment with the largest companies having 2000+. Today, most of these applications are built on virtual servers (75% VMware, 20% Citrix XenServer, 5% Hyper-V, etc.) so excessive power consumption, excess server processing power, and the barn full of servers that were all in the data center have all been replaced by a vastly reduced quantity of host servers with hypervisors.

With the advent of the hypervisor came yet another management console, introducing a whole new information silo in the data center, virtualization. With virtualization we have introduced a new management blind spot between the host server and what is actually happening inside and between the VMs on the host. While VMs are supposed

to be completely isolated entities, in reality one VM can absolutely impact another and we do not have a good way to see that.

So how do we manage virtualization servers? We are monitoring CPU uptime, processor utilization, RAM utilization, disk capacity, and IOPS using software consoles, network tools, server tools, a pipe wrench, guts, determination and the occasional candy bar. Our tools roughly approximate how we were managing the physical servers before them, with this new visibility hole, for the most part, just accepted by everyone except the one person who should have got a vote, the end user.

We are monitoring network devices, servers, storage, and collecting data off of a host of other devices according to a recent report from IDG Research Services, but only 28% of the companies IDG surveyed said they had the ability to actually monitor the business itself, the end users and the applications, though 91% thought it was important.

Gartner's chart below (Gartner's Hierarchy of Monitoring Model) points to a common sense reality, if we can measure the end user experience, the applications and deliver a positive End User Experience, don't all of those other metrics become secondary? In a word, yes. They become one more of many metrics tracked, all collectively doing a paint-by-numbers portrait of the End User Experience.

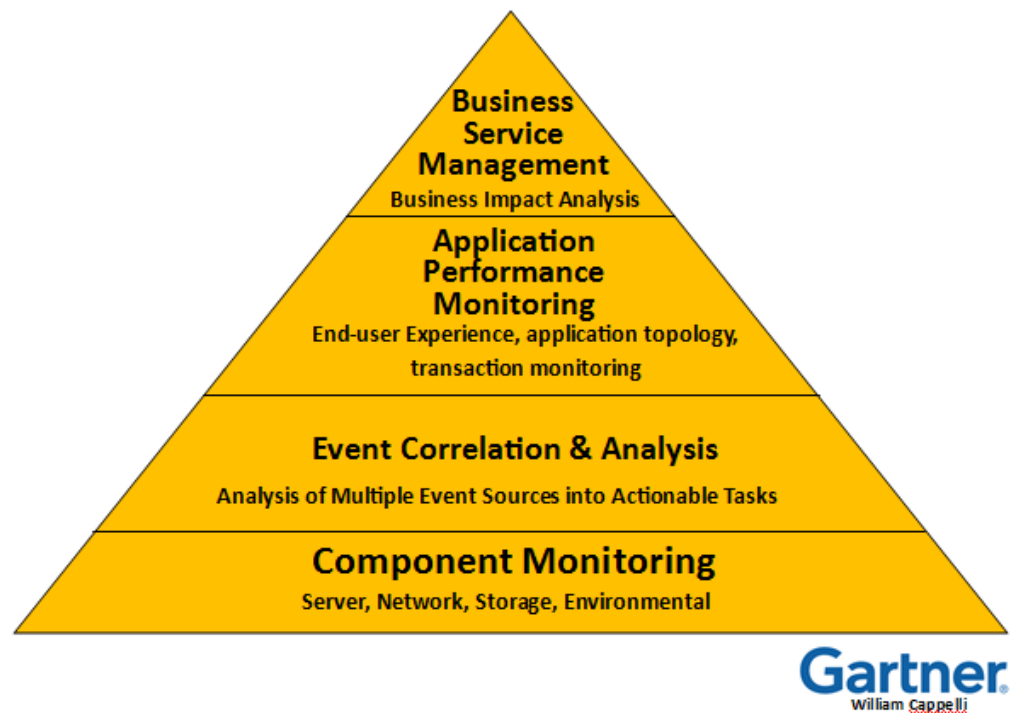


FIGURE 1.1 Gartner's Hierarchy of Monitoring Model details, in general terms, the four basic categories of monitoring tools and their level of sophistication. The further up the pyramid the better able the toolset should be at measuring and recording the End User Experience.

If our end users are happy and the End User Experience is good, then the rest really takes care of itself. Technology should be an enabler of productivity, not an obstacle in its own right. Aberdeen Group research, from January 2012, evaluating the reasons companies undertook performance (improvement) initiatives found that 74% of these initiatives were driven by end user dissatisfaction with application response time, application usability (46%), and poor service (36%).

The end user experience is the ultimate metric. Per the chart in Figure 1.1, William Cappelli of Gartner would disagree with me, pointing instead to Business Impact Analysis, or the ability to correlate functions of the larger business with application performance and the End User Experience as the ultimate metric. In my mind, the End User Experience should sit atop the pyramid, incorporating business impact. Ah, details. Moving on.

If the End User Experience is the ultimate metric, how do we measure it?

How do we “improve” the End User Experience? How do we tie that back to bottom line improvement for the business?



Did You Know?

50% of businesses are losing revenue due to poorly performing applications.²

How to Improve the End User Experience

To be able to improve anything you first have to be able to see the problem, and see where you are at present so you can determine what steps you need to take.

Get the Tools you Need & Learn how to Find What Needs Fixing

In the world in which Whitehat lives, virtualization performance with Citrix, VMware & Microsoft have been the greatest day-to-day concern for our customers because they may have every employee and every application delivered via a virtualized platform like Citrix to users all over the world.

When desktops or published applications delivered via Citrix are slow, the impact can be immediate and very significant. Even though Citrix typically is blamed by the end users as the source of the problem, negatively impacting their End User Experience, Citrix is actually the culprit about 20% of the time.



In the heat of the moment when End User Experience degrades and productivity begins to slide, common sense says minimizing productivity loss becomes just as important if not more so, than maintaining normal End User Experience metrics.

How do you minimize your productivity exposure if your own end users, as is often the case with Citrix, begin the conversation by sending you down the wrong path 80% of the time?

Ready to Find the Root Cause of Citrix Issues?

Get Started

Without the proper tools to see what is actually happening vs. what is being reported, IT will often fall back on tried and true short cuts, even if it will set back end users hours or even days.

The most common fix in a Citrix environment for an end user having problems is to blow away their profile, destroying their personalizations with some exceptions, and recreating it. Problem solved. End users bent. Productivity suffers while they go off to recreate their favorites and add back their personalizations.

That is how we arrived at the need to improve the End User Experience for our customers and their end users, and what started the search for tools that would let us begin our diagnosis with a full view of what is actually happening, not what is being reported.

So where do you start?

Find the right tools.

Start by looking at all of the tools you own. Yes, even those shelfware tools you bought but never really used, and compare their capabilities to the chart in Figure 1.1 on page two.

Look for tools that will give you more than just basic metrics on the core components of the network. Look for tools that will let you “see” the issues the end user is experiencing, from beginning to end, across every IT system, in real time.

We use two tools to give us complete visibility.

- **eG Innovations**

eG is an agent/agentless tool that captures metrics off of all of the components in the datacenter and correlates the results to help us quickly sort symptom from root situation. eG can monitor about 150 applications out of the box, taking a data center out point of view.

- **Aternity**

Aternity is agent driven and installs on edge devices (smart phones, laptops, tablets, Macs, PC's, etc.) establishing a baseline for what is normal for end users based on their location, device, and other

variables. Aternity captures any application sub-process that is critical to the business for measuring productivity and/or performance. Aternity provides a complete view of what the end user is experiencing by providing an edge device to datacenter view, or outside in.



Did You Know?

32% of surveyed businesses experienced damage to their brand reputation because of poor application performance²

These tools work for us and give us the ability to see and correlate the widest array of products including IBM iSeries, HP UX, Linux, Windows, Cisco, EMC, Dell, Android, Apple and just about everybody else.

The point here is take a look around and find tools you are comfortable with that will let you “see” into the application layer and what the end user is experiencing.

Note: Every software company we evaluated during this process said that their tool provided a single pane of glass into measuring the end user experience. Few actually provided the granularity we were looking for. If you find yourself in a similar situation, ask for specifics as to how they measure applications and the end user experience.

Tools like these will give you immediate visibility into your infrastructure and pull back the curtains on how your systems work and interact, giving you an unprecedented view of what is actually happening. Upon installation, you will likely take some immediate action in correcting some long standing issues that have clear solutions you could never see before.

What can I do
Today? Right
now?

How do we find the areas where we can improve the end user experience and improve our bottom line?

There are two ways a company can improve the bottom line.

- **Sell more stuff.**
- **Spend less to do the same work.**



Did You Know?

Business performance starts to decline when mission-critical applications reach the baseline of 5.1 seconds of response time delay²



Start by talking to your end users. Ask/Watch your strongest metric in action. Look for delays they experience. Watch for the extra hoops they jump through to complete their jobs. Watch for the workarounds they have come up with to get their job done more efficiently.



Case Study

A software developer was working with a particular end user to resolve an issue with some an home grown application that had recently been upgraded. No one could understand exactly what the issue was, so the developer located the end user and pulled up a chair to see first hand what the end user was experiencing.

The developer identified the problem and asked the end user to email the developers a screenshot so they could see what he noticed and create the fix, but that is just where the story begins.

Still in the cube, the software developer noticed it was taking a very long time for Microsoft Outlook to open, glancing at his watch it ultimately took six minutes. It took the same six minutes for the end user to open a new email and it took another six minutes from the time she hit send until it showed up in the outbox to be sent.

He asked her how long this had been going on and she returned his question with a blank stare. She could not remember a time when her email was any different. She had the same experience for the 10-20 emails she handled every day for the last three years.

This end user was potentially losing up to four hours of productivity a day just managing email, every day, for the last three years. The inability for IT to see this simple issue was costing the company approximately \$33,000 a year, or approximately \$100,000 in total.

The fix was ultimately a service pack for Windows XP that failed to install on her machine and a few others in the organization, pushing total costs closer to \$500,000. Something a basic application performance tool would have caught in the first few hours of being rolled out.



Be careful during this step to not to lose sight of the mission. The objective is to see and understand what your end users are doing on a daily basis and what can be done to improve their experience, not to collect a want/wish list from each end user.

Most end users do not have a framework of understanding as to what is involved in delivering data and applications to them. Knowing what they want is important and out of the box thinking, to my mind, should be encouraged. I think a quote attributed to Henry Ford sums it up best:

“If I had asked people what they wanted, they would have said faster horses.”

– Henry Ford

When you have exhausted this treasure trove of information, it is time for the real digging to begin.

Start with these 5 areas to improve the End User Experience

There are five primary area to you evaluate as you begin the journey to remove the technology obstacles that prevent end users from being as productive as possible.

- Look at applications that touch the largest number of people.
- Look at repetitive tasks.
- Look for reoccurring (zombie) problems that won't die.
- Look at multi-department processes.
- Look at processes with a high cost per transaction.

These will be discussed in greater detail I the following section.

1. Think Big



Look at applications that touch the largest number of people in the company. Is there a process or a handful of processes that are critical to the company that need to be very consistent to hit line-of-business objectives? Does one task, like login, take too long? Why? Create a metric, measure performance and map the IT process so each step in the process can be analyzed for improvement.



Did You Know?

Median US Salary: \$46,600 or \$33/hr. with benefits
10 minutes of delay a day costs you
\$1,375/employee/yr. or \$137,500 for a staff of 100.

2. Look for Repetitive Tasks



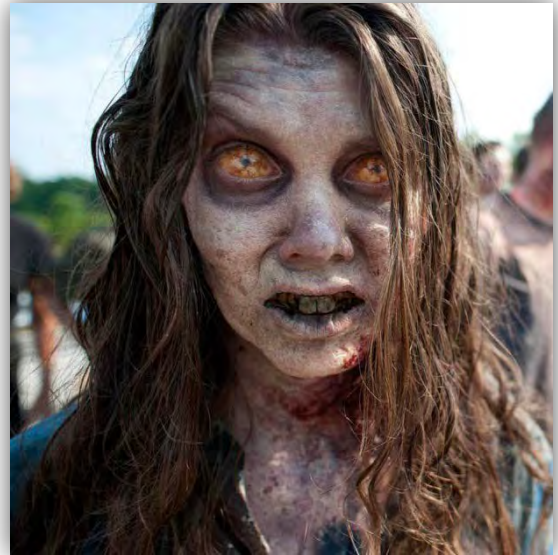
Look for tasks that happen over and over, establish metrics and look at the systems that process those repetitive steps to find improvements. Shaving seconds off of a process your company does 1000 times a day can bring strong incremental value.

3. Look for Zombie Problems

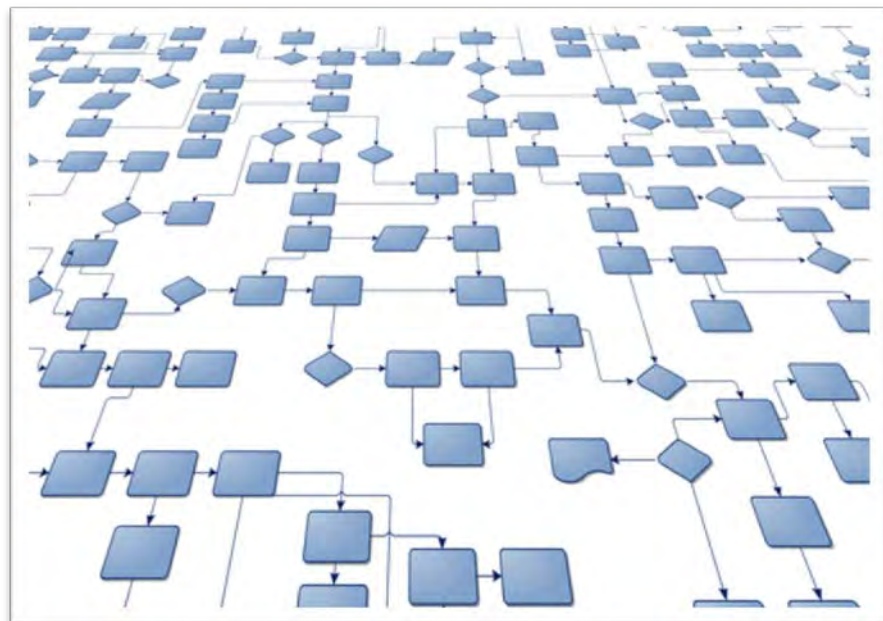
Find those problems that continually reoccur and put metrics in place to see them and identify them so they can be isolated and eliminated.

A good source to find this type of problem is at your Support Desk. Look at the tickets that keep coming back.

What are the issues that make it easier/better for the Support Desk to temporarily bypass a problem than find it and kill it at its root?



4. Look at Multi-Department Processes



Look for processes that involve multiple lines of business, multiple departments, multiple IT systems, etc. and analyze the seams. In other words, everywhere there is a handoff of information or resources there is another opportunity for problems to be introduced or new delays created.

5. Look at Processes with a High Cost per Transaction



Find those processes in your organization that have a high cost associated with them. High cost, in this sense, could be financial, or could be processes that take an extensive amount of time to plan for or to complete or involves a significant portion of the staff that prevents them from getting other tasks done.

Why the End User Experience is King

While end users can and often do get the short end of the stick, they should be king.

1. End users, or better said, the End User Experience, can be the singular most important metric for a business. Employees are “the business.”

If you can effectively measure how the symphony of applications, servers, computers, and related equipment all come together to help the end user do their job, you have created a single metric that can gauge the health of the business in real time.

2. End user productivity is often tied directly to bottom line results.
3. There is no ROI for any IT project if the end users fail to adopt it.

What about Small Business?

The average company in the US has 16 employees, so small business is really big business.

When we talk about small business, “expensive transactions” as mentioned in point 5 can take on a whole new meaning. Half of the staff could be absorbed by a single issue and typically small environments do not have the depth of IT expertise on staff that a larger company might. While often short on technical expertise or the time to apply it, small businesses often have the same or greater complexity in their environment. In these situations typically more resources (people and time) are consumed. The lack of specialized IT staff can lengthen the Mean Time To Repair (MTTR) potentially leading to additional delays and lost productivity if the small business has to call in third party specialists to resolve the issue.

Additional “seams” can be introduced as discussed in point 4 between the internal IT team and 3rd party specialists. These gaps need to be considered when looking at productivity and the end-to-end End User Experience. To reduce this exposure it might make sense to add more internal expertise, write specific response times into support agreements or look at other models like Managed Services or Hosting if these delays cannot be reduced to a level that is acceptable.

For small shops that are not IT centric, consider offloading IT entirely to a Managed Service Provider, either letting them manage your equipment and data on premises or moving to a hosted model. This is a great option if you need to upgrade your hardware but are not in a position to absorb a new capital investment in infrastructure.

Small businesses can often reclaim prime office space that the technology equipment occupied when it is moved offsite. At least one employee’s morale will be boosted when they realize they do not have to change backup tapes every night or listen to the fans of the servers humming all day.

Small businesses are often starved for mental bandwidth, often putting up with inefficient processes that impact the End User Experience simply because they do not have the time to explore solutions to improve their business, or perhaps do not know a better way of doing things exists. They are too busy doing the day-to-day work to take a step back and look at the larger picture.

Consider looking at a managed service model and weigh the costs of your 3rd party consultants, and support costs vs. having your applications delivered as a service out of a top flight data center.

Look for a partner that has a specialized focus on your size of business and understands the technologies you have in play. A few questions up front can save you a lot of headache after the fact when you realize your new partner has no skill in an area critical to your business.

This MSP/hosting model done right should give you with the ability to focus on your business and paying for your technology infrastructure monthly, just like your electric bill.

Conclusion

There is a much deeper discussion to be had on this topic, but suffice to say this is a good place to start and a great exercise for you to get a better understanding of what your end users are actually doing for the company with the technology provided.

It is easy for IT to silo itself off and think in terms of the basic metrics they are responsible for meeting. This exercise can help you understand how your systems connect to what the business does.

To recap:

1. Look at your existing tools today; do they have the capabilities you need? See Figure 1.1 on page two.
2. Work through the five areas mentioned. You might find a sixth or seventh for your particular organization type or size. Financial Services or Healthcare regulatory concerns come to mind.
3. If you are still stuck, get a Business Track Assessment from Whitehat or something similar from a vendor you prefer that will map your key business processes to the underlying technology components those processes touch in your organization.
4. Go “be” an end user, sit with them, watch what they do, and use that perspective to make their job easier and the company more money.
5. If you do not have a great tool to see inside you technology infrastructure, consider evaluating eG Innovations and/or Aternity. The more data points you can see and correlate the easier it will be to see areas for improvement and quickly identify issues in an outage situation.
6. The final take away here is that, done right, tools like the ones mentioned can transform your IT Support organization from a reactive support team burdened by heavy call volumes and ticket loads to a proactive department that is able to see issues 60%+ of the time before end users call. Think of what impact that would have on reducing support costs and how you could reallocate your staff away from operational issues to more project driven work that can potentially deliver more productivity.

¹ CIO Magazine 2010 [State of the CIO Survey](#)

² Aberdeen Group (2008) [“Application Performance Management: Getting IT on the C-Level’s Agenda”](#)

³ Aberdeen Group (2008) [“The Performance of Web Applications: Customers are Won or Lost in One Second”](#)



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