

Know the Nature of Your Problem

Net Forecasts – Peter J. Sevcik

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You have a list of action items at work. Several of them are in the form, “Answer this question....” Technology managers in enterprises spend a great deal of their time trying to answer questions that turn out to be complex and time consuming. And often these questions are so difficult they are not answered at all. The issue goes away or the circumstances change enough to make getting the answer pointless. The collective effort spent on looking for answers is staggering.

Wouldn't it be great if you could get an edge on solving the questions on your list? I propose the following simple way to categorize your IT questions. It is a way to understand the nature of the problem in order to define the correct approach for its solution. You place a problem within the following two categories.

Is it a puzzle or a mystery?

Malcolm Gladwell recently wrote a great article in the January 8, 2007 issue of *The New Yorker* called “Open Secrets.” He makes a compelling case that questions fall into two categories: puzzles and mysteries.

A puzzle is a question that has a clear answer and requires more data than you currently have in order to ascertain the answer. Solving puzzles requires defining the clear objective and then gathering information that leads you to the answer. His examples include determining the number of nuclear missiles the Soviet Union had during the Cold War, pinpointing the location of Osama bin Laden, uncovering the Watergate scandal. All of these questions needed good intelligence gathering. Most of them are finally solved with a specific data point. You know you have the answer when that last piece of the puzzle is found and it fits.

Mysteries, on the other hand, have a general answer and require proper analysis of the data you already possess. Solving a mystery requires figuring out what data to ignore and then finding insight from the data that really matters. Gladwell's examples include the fall of Enron, the question of weapons of mass destruction in Iraq before the war, diagnosing prostate cancer. All of these questions had or have a huge amount of data that is available

at the time the question is considered. You know you have the answer when you discover a consistent thread of mutually supporting data that leads to a strong conclusion.

The most fascinating example Gladwell describes in detail is the Enron case. It turns out that all of the information about Enron's complex finances was in public records. Jonathan Weil, a reporter for the *Wall Street Journal*, unmasked the fact that Enron had very little cash income relative to its public image by reviewing their 10-K and 10-Q filings which were available on line. He did not need one inside source or spy to get to the bottom of the largest failure in U.S. corporate history.

What lessons can this provide in managing technology? The most important lesson is to know which class of problem you are trying to solve and then applying the correct approach to finding the answer. If your first reaction to a problem is that you have to get more information, then you have defined it as a puzzle. Often questions go unanswered because people are getting the budget to buy and install a new tool to get them more data. If you are actually faced with a mystery, then the puzzle approach wasted a lot of time and money.

Does The Solution Depend On A Person Or A Team?

My observation with people trying to solve a problem within an enterprise is that they typically have the wrong people assigned to the problem. Or problems may just fester while the staff assumes that someone is surely working on getting to the bottom of it. The test that needs to be applied as the problem is being assigned is whether it can be solved by an individual or a group. Many problems simply require a team approach that leverages talents or authority from multiple parts of the organization.

The trap is that problems typically are not thoughtfully assigned. I have been in many meetings where the boss says, “Who volunteers to look into this problem?” Some eager person takes it on. They may have the best of intentions and be a true expert on the topic. Yet if the solution requires management buy-in or cooperation from other

groups, then this person's individual efforts are doomed.

Unfortunately, there is a stigma associated with going to your boss and saying that you need help from other organizations. Most technical people take pride in being able to fix problems alone. This extends to the boss who became boss by having his group fix things without "bothering" other groups. This solo attitude is fed by the need to get all the credit for the solution. Guru status falls upon those who do it all alone.

This was most recently brought to my attention at a large insurance company. The capacity planning expert was trying to apply the Apdex methodology to improve application performance tracking. I explained the process required to make the Apdex approach work within an enterprise. At each step that required input from anyone, he would jump in and ask, "Why can't I do this alone? Do I really have to get cooperation from other people?"

The answer is: Yes. Many stakeholders (business, users, application, datacenter, and network) must be involved in defining performance expectations and then ensuring that they are being met. This process, which we call Application Performance Management (APM), requires input from and then feedback to the stakeholders. My friend who was trying to do this all alone was not going to succeed.

The IT Problem Matrix

Two tests should be applied to IT operations problems, and these two tests define a simple matrix of approaches as shown in Figure 1.

Puzzles in IT refer to making things work--they either do or don't. If they don't work, you need fresh data to find and then execute the proper change. Once the change is executed, the puzzle is solved and you stop.

Mysteries in IT refer to making things work better. But better is relative. You need a continuous improvement process; it never ends.

		What is the question?	
		Puzzle	Mystery
Who answers it?	Team	Major System Change	Application Performance Management
	Guru	Fault Management	Capacity Planning

Figure 1 – The IT Problem Matrix

Turning to the cells within the Figure 1 matrix, we can define each as follows:

- Major System Change requires a team, and can be considered a puzzle. This sort of event may include moving a datacenter, upgrading architecture, expanding overseas, or adding a new large application. Such changes are typically managed by a cross-functional team, which needs to gather a lot of information and define a careful project plan by which the change will be properly performed.

This is a well known approach. It is also characterized by the project ending at some point and the team being disbanded to go back their functional jobs. All that remains is a "we did it" T-shirt. The puzzle is solved.

- Fault Management is much more focused on finding and fixing a problem. Hopefully the organization has assigned the proper group or guru to the problem. He or she needs a lot of new information but also an approach to find the critical root-cause and then execute a repair. The activity also ends--with the closing of the trouble ticket.
- Capacity Planning is the art and science of sifting through a lot of detailed data on how the system elements are working. The analyst looks for patterns, long-term cause and effect phenomena, complex mathematics, and judgment to predict

resource needs well in advance. The analyst's calls to buy more capacity are often made when most people think that the system is working well and see no reason to spend the money. But experience has taught the organization that the predictions from this guru should be heeded.

- Application Performance Management is a new art and science which is having a difficult time getting started in enterprises because the organization does not see that APM occupies a new cell in the problem matrix shown in Figure 1. The usual approaches are borrowed from adjacent squares: Form a project team to buy a measurement tool for some specific performance issue and then disband the team and let the tool languish after the problem is solved. Or ask a guru to make the applications work better.

However, these customary approaches are inadequate to really meeting the challenge of APM. Organizations must realize that in order to have successful APM they need to institute a permanent cross-functional team and foster processes that are new to the company.

Conclusion

All four approaches to IT problems shown in the figure should exist within any organization at some time. The question is, are you using the correct approach? Trying to solve a problem via a fundamentally dysfunctional approach costs the enterprise dearly in time, money, and frustrated employees.

Think about reviewing how the current major issues are being handled in your enterprise today. Maybe you should change how some of them are being addressed.

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