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### SYSADMIN

Tylock: If Systems Were Cars, Would Yours Be Double  
Parked?

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# if systems were cars, would yours be double parked?

This article's title started out as "Optimizing Optimization," but that sounded much too formal for something conceived in a parking lot. Today's guideline for system administration takes on the notion that systems can be well maintained only by focusing on well-established order through standards and procedures.

First, to explain where this author sits on the spectrum between chaos and order, I'll admit, I've been a structure ogre on more than one occasion. One of my favorite mottos is, "If there's no request in the system, there's no work being done on it." I'd say that for the better part of my career, I have been in the majority group of sysadmins who believe the only way to manage systems is through order.

## Time, Cost, and Quality

The basis for most project management philosophies dictates that you can (and must) prioritize any activity across three axes – time, cost, and quality. If time is king, costs and quality must necessarily be relegated to second and third class. Likewise, if cost or quality is most important, the others will suffer.

While accepting that specific cases exist where conditions require otherwise, for most sysadmins, cost is the single most important dimension controlling the operations of system support.

This focus on cost means system administrators operate with a perpetual shortage of resources. For some, that shows up as a lack of personnel; for others, a lack of funds for new equipment and software (or even maintenance of existing environments); and still others may find a lack of support from other functional areas of the company. As a result, system administrators have become resourceful, thrifty, and efficient – and focused on order as a cost-savings device.

## You've Got to Have Someplace to Put Your Stuff

So imagine driving across a large, mostly empty, parking lot and thinking, "It's a good thing I can cut across these parking spots and roll through those stop signs." (I said it was conceived in a parking lot – I didn't say how.)

Everybody has to find a place to keep his or her car. (And whenever I say "car," I mean vehicle used to transport people and stuff from point A to point B, be it an automobile, SUV, truck, motorcycle, moped, motor home, bicycle, or what have you.)

They are very personal things – you probably have a few different types around your home. Businesses have to plan for them as well:

- A small-sized business may be located on a street without a parking lot – only space for a few cars along the road.
- A medium-sized business may have a modest-sized parking lot, but you might have to fight traffic to get in and out of the busy street.
- A large-sized business has ramps to and from the expressway, but all the company roads are one-way and you can't cut through the medians.

The point is not that any particular solution is flawless but that at each size an appropriate solution is sought. Cost is a significant factor – otherwise the smallest of businesses would have an acre of parking available.

### by Steven M. Tylock

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Businesses have to worry about their changing needs as they grow. Relief can come through re-stripping (how skinny can we make those spaces), re-paving, and amenities that help traffic flow (like signal lights and exit ramps). The eternal question is how to fit all of the needed cars into the given space while getting them in and out efficiently.

### But Officer, They Made Me Do It

I submit that our companies' focus on the costs of system administration activities has blinded us to other potentially beneficial optimizations. We know that the way a small company operates cannot scale to a mid-sized company, and that the way a mid-sized company operates cannot scale to a large company. But when we scale up, we need to remain open to other ways of operating.

Event parking might evoke what this entails in a comparable way. While it is essential that a large number of cars get parked quickly and neatly, the solution is not a more rigid system but a more dynamic one. Plan where and how cars will be placed and then supply a mobile force to direct the stream of vehicles to the right places. But, when traffic is lighter, provide enough guidance in the form of signs and markings to enable the traffic to flow at that level as well.

For a similar situation in a technical vein, consider file system optimization. Optimize on time when file space is not a concern; optimize on space when it is scarce. This makes a tradeoff for scarcity of differing commodities – CPU cycles and disk space.

### Personalized Service

How can a site that is optimized for cost give personalized service? Trick question – it can't. Not unless it can change from optimizing on cost to optimizing on service. In the same way that a parking facility changes modes from peak to off-peak, we need to identify other alternative optimizations.

Of course, “personalized service” is an area inundated with fraud. It is hard not to get bulk letters that appear “personal.” Just a few encounters with “impersonal” personal correspondence are enough to heighten our levels of distrust.

### Policy

If a small company tends to run with less policy and a closer relationship between sysadmins and users, large companies tend to be the exact opposite. Part of the process of “ensuring” quality is formalization. By taking some of the thought process out of how actions are carried out, individual capabilities are less significant. (This is old news for both the franchise market and the assembly line.)

When one individual knows what is happening on every portion of the network, there is little need for rules of conduct on that network – potential problems are already understood and resolved quickly (except when an individual lacks that specific experience).

When a great deal of network exists, it becomes essential that it be documented and understandable in pieces and as a whole. All parties to the operation of it must cooperate. The “cost” of this cooperation is less than the “cost” of conflicting activity on the network.

What is needed is a mechanism to tell which cost is most significant at any one time.

## No Ticket, No Laundry

If you've ever read the fine print on your dry-cleaning receipt, you know that it is a reality – you lose that ticket (and the number) and they can't guarantee that you will be able to get your clothes back.

The trouble ticket system is an essential component on any sysadmin's tool belt. It should not be a surprise that this tool is found more frequently in larger sites. The mechanics of dealing with hundreds of problems without losing track becomes a burden.

The trouble ticket is not so useful when:

- The trouble ticket system itself is nonfunctional.
- The computer one would use to report a problem is nonfunctional.
- The WAN connection to the central area is nonfunctional.
- Every system needs a specific action taken on it.

It is precisely for these reasons that sysadmins make sure there are redundant reporting mechanisms. In many such environments, email, pagers, and phone lines come into play. But what if the solution goes beyond ignoring the "system"?

## The Alternative to Cost Optimization Is?

Here's where I'd like to present the "Tylock Theory" for optimizing on something other than less cost. Unfortunately, that insight hasn't been revealed to me yet. Perhaps in comparing notes we can find common ground. I'll offer these distinct situations where cost was less of an issue for me:

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Sorry, I can't name one. For every significant instance that I can recall quality as a driver, I paid the cost personally rather than in dollars from the company (example – working through the night or weekend to ensure an upgrade is problem free). For all of the issues where time was significant, cost was right there next to it (replacing broken equipment – yes, get it, but no, don't spend a lot on it).

So I'd like to hear from you. Please consider sharing your short story about optimizing on something other than cost. Drop me a note – with enough responses, I'll work up a composite of anecdotes. Without responses, I will of course have been proven right ;-).

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