IT Infrastructure Organization Structures

By Harris Kern's Enterprise Computing Institute

This article introduces you to the structures that best support enterprise computing. Not mainframe computing, not client/server computing, not network computing, but enterprise computing and technology has nothing to do with it. You'll probably go into shock after reading the first few paragraphs of this article.

After completing more than 350 IT assessments, encompassing hundreds of pages of data, I was strategizing on how to resolve the infrastructure-related issues impacted by the organization structure. Lo and behold, the new working structure I came up with looked very familiar. Much of it looked just like the mainframe data center environment that evolved back in the 1970s!

As you might expect, I doubted this overall solution. After all, how would it look to be associated with the *Enterprise Computing Institute* and sounding like mainframe people?

But the more you think about it, the more it makes sense. No other environment has historically provided better *reliability, availability, and serviceability* (*RAS*) for supporting mission-critical applications than the mainframe environment. So why have we ignored the lessons learned from mainframe disciplines? We automatically assume that what applied to mainframe won't work for client/server computing because the technology and architecture are so different. But the technology has nothing to do with it. The key is that the applications are *mission-critical*.

Organization Structures for the 21st Century
Building a "world-class" infrastructure *always* starts with the organization structure. The figures in this section show recommended organization structures designed for small, medium, and large infrastructure development and support organizations. No one structure is correct for all organizations, but certain key functions do apply in all cases.
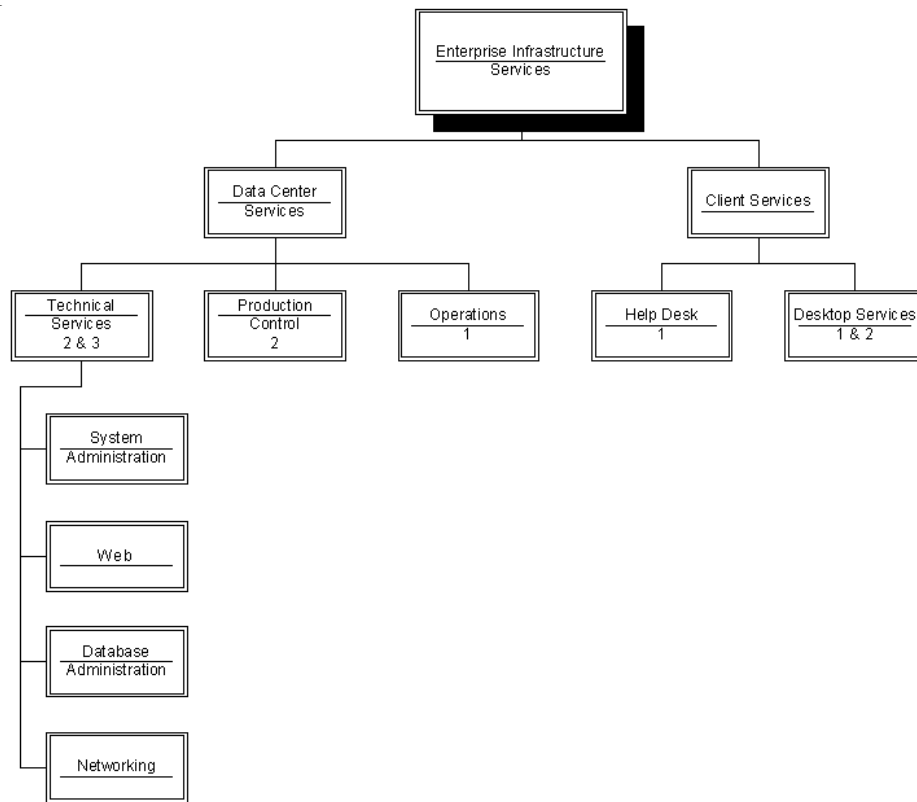
These organization structures are designed to address the people and process issues first, with technology issues being secondary. I'm not saying that technology isn't important, but let's be blunt here: Based on the assessments I've performed, infrastructures are in horrible shape precisely because of the lack of attention to non-technology issues. For infrastructure organizations to become successful and cost-effective service providers, the focus needs to be in this order:

1. **Organization**
2. **People**
3. **Process**
4. **Technology**

As I designed these organization structures, I included first-, second-, and third-level support roles for each area.

Organization structure #1, shown in Figure 1, is designed for IT infrastructure development and support organizations with fewer than 50 employees. Here's the reasoning behind the structure:

- Production Control or what I prefer Production Services is at the enterprise level for process design, ownership, and accountability. In many of the smaller IT organizations I visited, the priority is always technology, technology, technology. Organization structure #1 includes a production control function to focus on processes and production QA. Even in a small shop, it's never too early to focus on process. If technology is implemented without workable processes, high availability for that technology is unrealistic.
- Mission-critical (data center) functions are separated from non-mission-critical functions (desktop, help desk).
- Level 1, 2, and 3 technical staff for the mission-critical production environment are grouped under the same organization to breed future technical resources effectively. All IT organizations have a shortage of technical resources, but this shortage is severe in smaller IT shops.

**Figure 1: Organization structure #1 (for small IT organizations).**

Organization structure # 2, shown in Figure 2, is designed for IT departments with 50 to 75 employees. The significance of this structure is as follows:

- The production control function is structured at the enterprise level, bringing visibility and accountability for key infrastructure process design, ownership, and accountability.
- Service center (help desk) is structured at the enterprise level.
- All mission-critical technical services are grouped under the Technical Services organization.
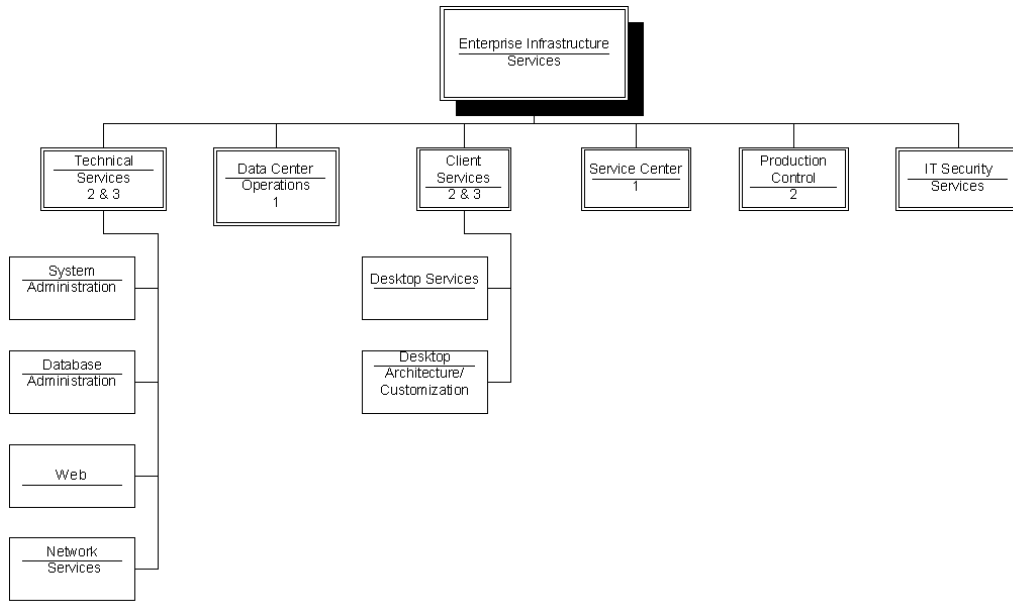
Figure 2: Organization structure #2 (for mid-size IT organizations).

Organization structure # 3, shown in Figure 3, is designed for larger IT departments with 75+ employees. This structure is designed to introduce an infrastructure technology consulting group. This group's primary focus is designing and developing those special utilities/tools needed to improve the effectiveness of the infrastructure.
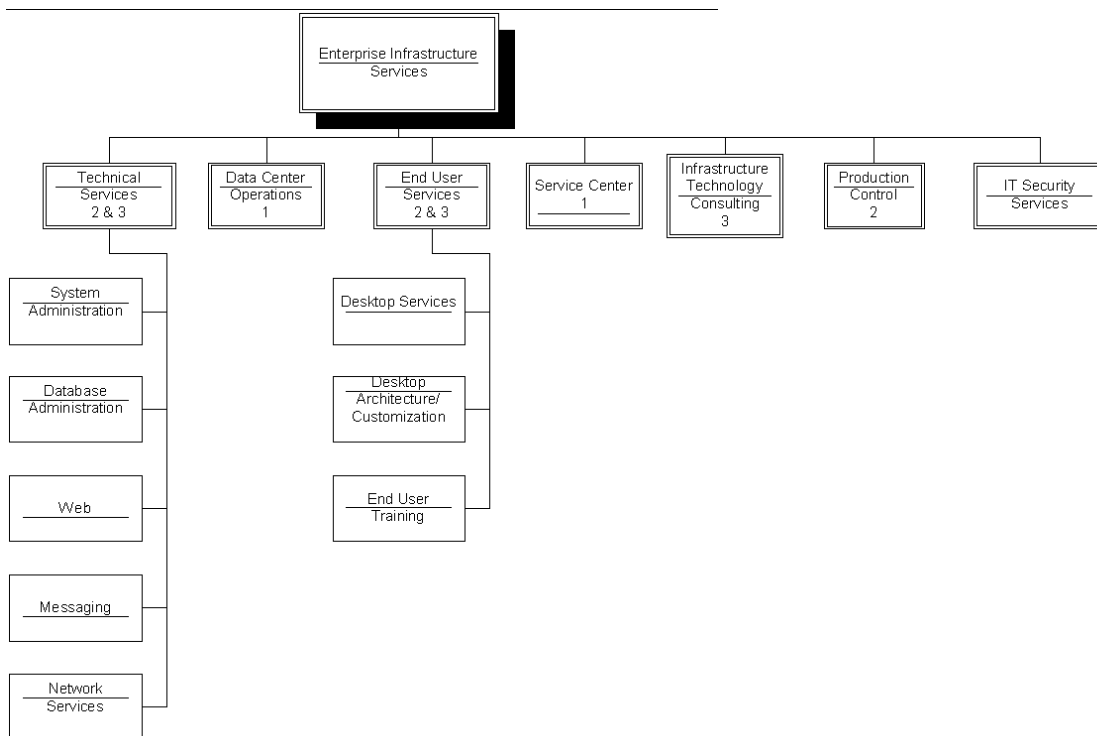
Figure 3: Organization structure #3 (for large IT organizations).

Mission-Critical Versus Non-Mission-Critical Applications
It's important to distinguish mission-critical (24x7) versus non-mission-critical (9x5) support. This separation is always controversial, but necessary. It's controversial because people argue that in network computing environments the desktop is just as crucial as those big data center servers housing the applications or database.

I happen to agree, but this issue needs to be put to bed once and for all.

If a single desktop or even a LAN goes down, some people might be inconvenienced for a while, but it won't break the bank. If a mission-critical server goes down, however, it affects hundreds or even thousands of users. And enterprise systems for HR, manufacturing, etc. usually *are* mission-critical. Systems requiring round-the-clock support need to be branded mission-critical. Mission-critical support means that crucial processes require a specialized group such as production control to implement and maintain them. Basically, the 24 x7 group is paid not to sleep. Their life should revolve around the infrastructure. When a server goes down, the on-call support staff jumps. The 9x5 group is equally important, but is not on call 24 hours a day/7 days a week. The specificity of mission-critical applications varies from company to company. For example, some businesses may require 24x7 support for email.

Structuring Technical Staff
All staff supporting mission-critical systems within the infrastructure support and development organization should be structured in the same manner, with three levels of support junior technicians (second-level support personnel) working very closely with senior technicians (third-level support staff) and reporting into the same management. This structure provides certain benefits:

- Accelerated skills development for second-level or junior technical personnel.
- Clearly defined career path for lower-level technical personnel.
- Improved communication between second-level and third-level support as they work together on implementing projects and production support issues.
- Projects and support issues are discussed in the same staff meetings.
- Second-and third-level technical service personnel have the same group goals and objectives.
- Improved turnaround for problem resolution.
- Senior staff is freed to provide analysis of new technologies and fully implement and customize systems management tools.
- Time is freed for senior technical staff to architect the proper infrastructure.
- Second-level technical personnel assist senior staff with implementing and maintaining systems management tools.

Second-level personnel should not be designated "support only." They need to be working on projects with senior technicians.

Second-level and third-level technical staff should also be physically located in the same area. They should have coffee breaks together and attending technical service group outings. There cannot be any organizational barriers.

Network computing requires cross-functional teams for the technology to be successful. The real question is how to get the separate technical areas to work together and share knowledge. This is a cultural issue and is truly different for each organization. These are the steps involved:

1. Unify the management team. This is not a difficult task. Gather them all in the same room, talk about the project, and discuss the value it will have to the organization. Continue this type of meeting to ensure that the importance of the project stays fresh in their minds.
2. Clearly define the technical roles and responsibilities for each team member.
3. Define the method of measurement and reward for each team member as it relates to the project.

Make sure that each employee is not assigned to multiple activities on the same day. Don't multitask your employees! It's bad for the project.

Teach your employees that sharing skills and knowledge is good and will be rewarded.

Once you have planned all this out, use cross-functional teams everywhere you can. They really work!