4 Trends We See for 2020

Focus on Small and Midsized Organizations

By Tim Haight

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Abstract: Major IT trends are discussed based on CGNET's consulting experience with clients over the last 18 months . They are most involved with the new challenges of operating in the cloud, security issues, a revolution in IT support and the "people problems" surrounding IT innovation. CGNET has learned many useful lessons, including new security training techniques, how to do an attack surface assessment, and standardized techniques for IT assessment.

Introduction

As we read this year's crop of annual reviews and predictions, CGNET saw a gap between what was being written and what we had experienced. We decided, therefore, that it might be helpful to present our review of 2019 and predictions for 2020, from the perspective of an IT consultant in the trenches, serving our customers, day to day.

The kinds of reviews that brought us to think of doing our own recap and predictions included the "Gartner Top 10 Strategic Technology Trends for 2020" and Lucy Bernholz's "Philanthropy and Digital Civil Society: Blueprint 2020." These represent two different perspectives between which most other analyses fall. The Gartner piece focuses on how they expect emerging technological changes to impact the world and business. It discusses hyperautomation through artificial intelligence and machine learning, multiexperience computer-augmented activities combining AR, VR, sensing technologies and more, democratization of application development, the increasing use of autonomous things like drones, robots, ships and appliances, and more.

Bernholz's latest annual blueprint deals with our evolving digital civil society and what we must do to

protect and advance the rights and opportunities of the people within it. It emphasizes the challenge to our society's vision of democracy by digital technologies and how they are being used. She writes, "We need to recognize that each of the many systems that tie our physical selves to our digital twins is a commercially controlled, surveilled portal….In such a world, our 30-year-old notions of consent, privacy, control, access and networks of relationships don't help us."

Both analyses seem rather daunting and far from our ordinary operations, not because we don't experience surveillance on our smartphones or artificial intelligence in some of our applications, but because the scale of the trends seems, on one extreme, to be focused on the opportunities of large organizations, and, on the other, on a commitment to change that our organizations have yet to embrace significantly.

This being the case, while both approaches challenge our imaginations, they don't address our immediate needs in 2020. What would? Finding out starts with examining the characteristics of our organizations.

Small to Midsized Nonprofits

With a couple of significant exceptions, all CGNET's customers are small to midsized. SMB is an abbreviation for small and medium-sized business, sometimes seen as small and midsized business. A business with 100 or fewer employees is generally considered small, while one with 100-999 employees is considered to be medium-sized. Few American foundations have more than 250 staff, and almost all have fewer than 100. They are not, therefore, going to be creating many "business critical" applications using hyperautomation or multiexperience applications, although larger organizations may encounter grant proposals that use them. Some of our larger clients also can be expected to use AI to deal with large datasets.

Smaller organizations, using on-the-shelf technology, will wait for vendors to incorporate the new technology into new or familiar products.

Further, many of our customers are foundations, nonprofits or NGOs. The missions of these organizations are obviously different from corporations or small businesses. Their mission is not to increase value for owners but to improve society. As a result, the competitive pressure to innovate to increase profit doesn't exist. The drive to capitalize and monetize each new technology isn't there. Thus, what is happening with AI or blockchain is interesting, but not an existential issue.

Our Perspective

CGNET's work looks less at the technological horizon or the public interest and more at what small nonprofits and foundations are doing with their technology now, including what they are planning. We can provide that look at "comparable organizations" that often comes up in requests for proposals.

No company can provide services across the complete spectrum of IT needs, but we get exposed to a wide variety of organizations and projects that stimulates insights. Last year, these were the activities we performed the most:
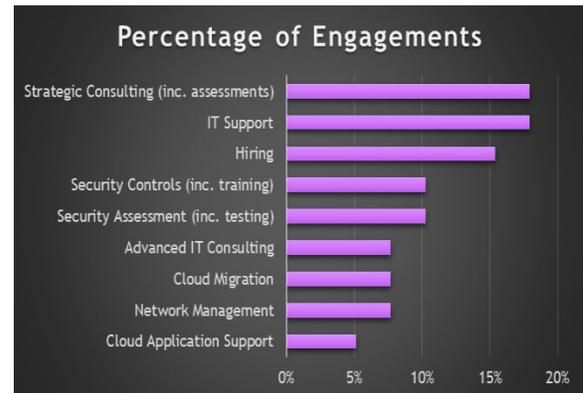
We did a lot of strategic consulting, which mostly means assessing a client's IT needs and proposing appropriate procedures and technologies, in terms of what aligns with the organization's mission. We also provided a lot of ongoing IT support, both on-prem and remote, both domestic and international. We hired support professionals that we managed, and we also helped clients pick their IT staff or local consultants.

A lot of last year's work involved security. We did comprehensive security assessments, risk assessments, vulnerability testing and attack surface testing, among other things. We also set up security controls (procedures) at several organizations, including training users about security.

The advanced consulting category was filled with projects where we supplied advanced knowledge of a technology, such as Active Directory, where the client needed more expertise. We did a lot of network management, from the LAN to global system.

Moving to the cloud was a big activity last year. We helped with planning and executing migrations, and we often provided ongoing cloud application support, such as for Office 365.

There were things we didn't do. For example, we rarely do software development. Most, but not all, of our clients operate in Microsoft environments. Yet

even with our somewhat limited scope of activity, we feel we have a good picture of what's going on.

Our findings fell into two categories: overall trends and useful tips. The rest of our report reflects this.

The Overall Trends

The overall trends we found were these, which we list below then discuss:

1. Living in the Cloud, and Its Discontents

2. The Continuing Search for Security

3. The IT Support Revolution

4. People Power, for Better or Worse

1. Living in the Cloud

Even in our clients' risk-averse culture, it's safe to say that any applications and infrastructure that are not yet in the cloud are legacies. The on-prem data centers have mostly emptied out, and the infrastructure needed to support users' desktops and notebooks has been greatly simplified.

The servers disappeared, but what our clients have learned is that challenges of managing their contents in the cloud still exist. Most of our customers have moved to the cloud to access improved versions of what they used to have on-prem. They are not the hair on fire developers or service vendors who spin up virtual machines to develop new applications. They have migrated.

Once migrated, however, they discover that while the promises of business continuity and secure infrastructure have been kept, the zone of vendors' responsibility for files or apps stored on cloud platforms otherwise stops at the application layer. In the case of software-as-a-service, the management of users, content, backup and lots of security often are still the customer's responsibility.

The result is a lot of projects, such as maintaining and fixing Active Directory, implementing Multi-Factor Authentication, and optimizing database services.

In some cases, the challenge is to finally move those last legacy apps, the ones that had been put off because they were so complex and entangled with other services.

These issues will continue for a few years, but, ultimately, we expect them to be resolved by new solutions, largely in the form of cloud-based management services.

An important area that is emerging is cloud-to-cloud services, such as getting single sign-on to work across several cloud providers and exchanging data between cloud-based services. We expect more activity in this area. Also, while we are not yet seeing a lot of examples of Edge Computing, locating processing power closer to the point of data collection, some of our clients predict it will affect them in the future.

2. The Continuing Search for Security

A few years ago, we suddenly felt that everything we knew about IT security was inadequate. The strategy of protecting our systems at our networks' perimeters was no longer enough. The question has become not if your network was going to be compromised but what to do when it happened.

The response was a flurry of security product development, and a flood of initial solutions which were either difficult to manage, expensive, or both. The confusion of sorting all this out continues, but at least a few things have become clear:

- Networks must be monitored inside the firewall, one way or another. Today, the most promising technologies for this may be next-generation firewalls. But the struggle between the attackers and defenders to innovate goes on. What can be detected today may be hidden tomorrow.

- The most promising way into a network is no longer probing its ports but sending messages to its users. Although the success rate of social engineering has fallen as users

have become trained, phishing through various media is still the leading attack approach. Advanced Persistent Threats to very specific targets have become more sophisticated, while ransomware can be widely distributed. We are still seeking solutions in the infrastructure to counter these threats.

- Although confidentiality has always been part of security, privacy has risen in importance. Laws and regulations such as the European Union's General Data Protection Regulation (GDPR) and the California Consumer Privacy Act (CCPR) illustrate these concerns well. While many of our clients have avoided the direct impact of these laws (for example, the CCPR exempts nonprofits) the general trend is for organizations to take more responsibility for the rights of the people whose data they collect. Recently, the National Institute for Science and Technology (NIST) has released the first version of its Privacy Framework which includes practices for carrying out Privacy Risk Assessments. We expect to see many more organizations assessing and managing their privacy risks in the next few years. They may also be assisted by one of the large numbers of compliance tools now on the market, which sometimes can also help prioritize risk or disaster recovery/business continuity planning.

- Cyber insurance has not yet proved its usefulness for smaller organizations, since it is still primarily aimed at the consequences of a major breach of personal data, and/or ransomware.

- Smaller organizations, including many of our clients, lack the time, expertise and money to effectively implement the solutions discussed above. A particularly weak point is incident response. Costs must come down. In some areas, such as network monitoring

and phishing testing, this has begun to happen, but for many aspects of security, it has not.

3. The IT Support Revolution

Many of our smaller clients do not have full-time IT staff. They tend to rely on local IT consultants who provide help desk services and maintain the on-prem infrastructure. These consultants have had to continuously update their services in response to several trends:

- The on-prem infrastructure they manage is moving to the cloud.

- Providing security has become more difficult.

- Clients want more strategic consulting,

- Expectations for help desk services have risen and providing good help desk services has become more complex

Many local IT service providers have adapted to these trends very well. Others have not. It is largely a question of managing the expanding amount of knowledge help desks and service providers must have and doing this at a reasonable cost.

In the same way that the role of the IT manager has changed in the last few years, so have the expectations of local service providers. CGNET gets involved to supplement local providers or to help clients pick a new one.

Sometimes the reason local IT providers struggle has to do with a lack of expertise on the part of the client. As the client organization becomes more concerned with choosing new applications, for example, a good deal of the decision will be based on what is going on in the organization. At some point the organization's domain knowledge and the provider's technical knowledge must converge. This requires that each side knows enough about each other's work and that they communicate well. Achieving this can be difficult. Sometimes, assessing new business

applications is simply outside of the IT provider's expertise.

The nature of new applications can contribute to the problem. It may be more difficult to ensure adoption of a collaborative application than a productivity application learned and used by individuals. Workflows, for example, may be much more specific to an organization than the way individuals use word processors. This can affect help desk services as well as implementation of new apps.

Our clients are dealing with these issues in several ways. If it's the right time, perhaps because the organization has been growing, some are hiring in-house IT staff. Some, if they can afford it, hire different IT consultants for different activities. CGNET, for example, may be brought in for strategic planning and work with the local support team.

Some are getting rid of as much local infrastructure as possible and relying on cloud providers for support. Meanwhile, cloud providers are seeking to automate as much support as possible to reduce costs, which often doesn't address users' exact problems.

The situation may provide a great opportunity for vendors to use artificial intelligence, machine learning and augmented reality to provide support. Unfortunately, such products are nowhere near here yet.

4. People Power, for Better or Worse

"People issues" have been with IT for some time, but they seem to be getting more severe. Part of it is the new emphasis on applications involving groups, such as collaboration and file-sharing, as opposed to apps used by individuals. Getting people to collaborate can be worse than herding cats and more like herding flocks of several different birds.

Part of it may be that some issues requiring staff cooperation have built up over time. For example, our clients' file servers are in varying degrees of disorder, so staff may be having difficulties finding

stuff. Fixing this, however, means knowing what documents and data you have and agreeing where to put it and what to call it. The result of this difficulty is that organizations may move documents to the cloud to improve access but not address their organization. They intend to get organized, but the project keeps getting put off.

Some organizations, and their consultants, have tried to implement new applications but have not used techniques to stimulate adoption, such as involving staff in evaluating the applications prior to purchase. The application may then be used by only a fraction of the staff, while others bring in still other applications spontaneously. Change management and training are often not done well.

Application vendors may not be much help. While they offer training, it may not be very good. It is very unlikely to be tailored to the needs of the organization. More personalized training may cost a lot more, if it is available at all.

CGNET now includes change management techniques when it recommends new applications, such as holding meetings based on design thinking principles. We also will assist organizations in change management activities, such as application selection, pilot programs and training. Much more remains to be done in this area, however.

Nevertheless…

The installation of collaboration apps, from vendors like Microsoft, Slack, Google, Box and Dropbox, is booming. The leaders of organizations want the people under them to collaborate. They see all kinds of "silos" that should be broken down. While this may encounter "political" resistance in some cases, the fact is that several new collaboration apps have been implemented. Sometimes people get used to them and things get better.

On the other hand, we have worked with several organizations where the issue is that too many collaboration or file-sharing apps have been adopted and the issue is how to standardize on one, or two.

The Upshot

The proportion of attention that must be paid to "people issues," versus technical issues, is exploding, and IT must take this into account. The fact that dealing with people is labor intensive and therefore expensive doesn't make this any easier, but the upshot is that if you're in IT these days, you had better be able to manage change, adoption and training.

The Useful Lessons Learned

The best place to find our lessons learned is in our blog (cgnet.com/blog/). Here is an annotated bibliography of the lessons we learned last year:

Fix Your SharePoint File Structure, Apr 29, 2019: First steps for using SharePoint as a content management system. Tips for the process of organizing document folders in an improved SharePoint architecture, including how to identify duplicate files and how to create tree views in SharePoint.

Putting Design Thinking to Work, May 30, 2019: How to use design thinking in a meeting designed to help with change management and get staff buy-in.

Make Cybersecurity Training a Game, Jul 3, 2019: If you want to engage users and make the message stick, use games in your cybersecurity training sessions.

Finding Version Control in Microsoft Teams, March 20, 2019: Version Control is a great feature in Microsoft Teams, but it's surprisingly hard to find. Here's how to do it.

Password Managers: An Extra Step Toward Peace of Mind, Aug 15, 2019: Why to use a password manager and suggestions of which ones to buy.

Foster Security Training Engagement with Quizzes, Aug 28, 2019**:** How to integrate interactive online quizzes into live security training classes using Mentimeter.

How Secure Is Your Attack Surface? Sep 5, 2019**:** Vulnerability testing is still essential, but hackers are going beyond your infrastructure to find out things about your organization. The attack surface includes places like unused areas of your domains, collections of email addresses from hacked sites, and paths from discovered endpoints to other weaknesses.

Tips for IT Strategic Assessments, Sep 26, 2019**:** Some of the steps CGNET uses to do effective strategic IT assessments.

How to Hire an IT Support Company, Oct 10, 2019: The step-by-step process to hire a local IT support company.

Include Security in Appropriate Use Policies, Oct 24, 2019: Appropriate use policies are a good place to put content that users will read, at least when they're hired. Here's a list of security practices you can include.

Organize Your Cybersecurity Work with CIS Controls, Oct 31, 2019: The *CIS Controls* from the Center for Internet Security are clearer and easier to use than the ISO security standards. Here's how you can integrate them into a security assessment.

All I Want for Christmas, Dec 12, 2019: A list of new products and services that should be created, such as applying machine learning to content categorization and generating a willingness for universal application of multi-factor authentication.

Backwards into the Future: Eight Trends for 2020 That Are Already Here, Dec 19, 2019: The short version of several of the trends mentioned above, along with the death of VPNs, a new focus on cloud security, and the need to do privacy assessments.