

# Appendix B

---

## Executive Scenario for Cloud Migration

---

This narrative discussion will help you to understand the decisions that must be made by members of a corporate executive team when considering a move to cloud-based operations. In our scenario, consider a situation which the Acme Widgets company has increased production from \$12M in revenue to \$120M over the past five years. Facing a projected growth of 20% in sales (\$144M in the next year), the company infrastructure has been stretched to the limits of capacity and there are demands for more from both internal users and from external clients and vendors.

Susan, the CEO, has been lauded for bringing the company phenomenal growth. Increasing a company's revenue stream 10-fold over a five-year period gets notice from a lot of people, especially shareholders. The board of directors has been very generous, so keeping up the growth has made the CEO feel like the proverbial duck swimming on a calm pond—no one sees how fast the feet below the water line are moving to keep the duck afloat. Susan knows from conversations with each of her team members that the company is at a point where it cannot continue without making some changes, and she has assembled the executive team to discuss how to proceed with a proposal made by Jim, the CIO, to reduce operational costs by using cloud services.

Murray, the CFO, knows that administrative costs, labor, and accounts payable and receivable are struggling to keep up, expenses are lopsided and far too high on the sales side, and there is not enough staff to do the job without having people stay until 9 or 10 p.m. every night. Trying to balance profitability, cost of sales, and management of operational costs has become Murray's favorite daily exercise. Making a cut that may impact the flow of revenue could cause a burp in the system that the company cannot afford, so any changes are made only after lots of study and meetings, when a general

consensus has been reached among the management team that it is the right course of action. Murray realizes that something needs to change.

Danny, who is Executive Vice President for Sales, truly believes that he has succeeded in every facet of his role and in bringing home the business. He doesn't care what it takes to make the deal—as long as the deal is booked and his sales team gets compensated for the sale, he gets his spiff and demands that the rest of the company support him, regardless of the internal struggles it may take to keep customers happy and buying widgets. Spending money for advertising and marketing is part of the cost of making the sale, just like travel, lunches, dinners, hotels, conventions, etc. These are necessary costs of business to get the widgets into the hands of customers. Customer support, service-level agreements, cost of goods sold, delivery, maintenance, and installation costs are all things that are taken care of by someone else. Danny believes that nothing needs to change on his watch, since sales are doing so well.

Linda, the Vice President for Human Resources, has during the last five years gone from a job that was almost boring to one with not enough hours in the day. She is swamped with paperwork, and the state mandates many documentation requirements. She could certainly use more staff to help her, but the budget does not allow for non-revenue-generating head counts that are not absolutely essential for operations. Human Resources is also responsible for the population and data maintenance of directory services (Active Directory and Lightweight Directory Access Protocol), and she has to battle for everything with Murray, the CFO, to get something done. As a result, Linda has become afraid to ask for much. She has resigned herself to taking lots of work home at night and on the weekends to catch up, and focuses mostly on recruiting and hiring processes during the normal workday.

Jim, the CIO, has seen the IT department become a 24/7 operation. Customer support requirements now demand that continuous operations be supported, and company growth has outpaced the technology being used. While the company has grown from 25 people in the first year to 700 currently, only one-fifth of the technology used company-wide is less than one year old. There is not enough staff to do the job without having people stay late and work well beyond their normal work shift. Most of the computers are three to four years old and are recycled from desktop machines to be used as file or print servers and in the customer support center as vendor and customer access data stores. Some have been converted from Windows-based platforms to Linux servers to save costs. The cost of replacing obsolete

machines and buying new equipment amounts to about 15% of the total IT budget. Costs for telephone-related equipment, support, and networking are about 20% of the budget.<sup>1</sup> Corporate software licensing accounts for about 30% of this budget. Labor accounts for most of the remainder of the budget, leaving only a very small discretionary fund for use by IT to optimize operations. Jim knows that something needs to change.

Following is a transcript of the executive team meeting.

**Susan:** Ok, folks—let’s get the meeting started. Please take a seat and let’s begin. We have a few other things to cover today, but I want to start with a proposal Jim brought to my attention that may be useful in cost cutting and helping us keep our numbers from falling back.

**Danny:** All they do is go up on my watch ...<grin>

**Susan:** Jim, why don’t you tell everyone what you are proposing?

**Jim:** Sure. I think we can make some changes that will help us in nearly every area. By getting rid of our data center and outsourcing the services and equipment from the cloud, we can save a lot of money. I have been researching how moving away from desktop licenses for software could impact our budget, and I believe we can get the same features for a lot less money and have the same capabilities provided. There are many areas to cover, so I thought we should start first with customer-facing solutions, as they have the most impact soonest.

**Murray:** That sounds very interesting. I believe I heard some scuttlebutt about how one company did that and cut operational costs by more than half.

**Susan:** Jim, what areas did you have in mind?

**Jim:** Well, to start, the way we manage customer data is not very efficient.

**Danny:** Well, I’m not going to have customers see any negative effects of a change. I have to deal with those, and my

---

1. Advances in VoIP, VoWLAN, softphones, and dual-mode cellular/wifi phones are coming to the rescue here, as costs go down and mainstream production goes up.

team will have to be convinced this is something really good if we're going to go along with it.

**Susan:** Danny, none of us want to see customers view us in a bad light. Go on, Jim.

**Jim:** For every customer, the sales guys use the contact management software to enter the customer data into their laptop. That data gets synchronized to our central customer database when they connect through our dedicated VPN lines back to the office. They sync that data and we have data scrubbing software that performs integrity checks. That data is used by the marketing department for reaching out to current customers, new customer prospects, and even former customers.

The contact management software licenses for 150 sales team members amounts to about 75K per year in license fees and maintenance costs. The cost of maintaining a dedicated VPN line is about 6K per month, or 72K per year. The cost of maintaining a staff to manage 24/7 the database servers and network servers for the VPN and database amounts to an average cost of 120K per year for each IT contractor, totaling 8 bodies for those functions, or 960K.

By replacing the contact management software and the database back office, we can save over \$1M a year by using a cloud-based CRM product called sugarCRM. We wouldn't have recurring license fees, no cost for the software to run it on, the back-office staff to run the contacts database can be released, and the rest of my team can function without them. The dedicated VPN line won't be necessary, since we can secure a connection over normal Internet for using this product, and the data would still be housed with us on site.

**Murray:** You really think we could shave \$1M in costs just by dumping the contacts software? Jim, in my former CFO roles I've seen many problems with the risk factors associated with IT systems, because they're notorious for failing to deliver their promised benefits, and a large percentage

of projects end up scrapped due to poor user acceptance. How will this be different?

**Jim:** Absolutely. Good points Murray—that’s precisely why we’re exploring cloud computing. The use of cloud computing matches cash flow to system benefits more appropriately than the packaged software use model. In the old way of doing things, a large investment is made early in the project, prior to system build-out, and well before the business benefits, presumably financial in some shape or form, are realized. This model is even more troubling given the risk factors associated with IT systems that you’ve highlighted. In contrast, cloud computing is a pay-as-you-go or, as we call it in our shop, pay-by-the-drink, an approach in which a low initial investment is required to get going, and additional investment is incurred only as system use increases. This way, cash flows better match total system cost.

**Murray:** That’s interesting, Jim, but doesn’t this concept use open source software?

**Jim:** Yes. it does. What I described mirrors the use of open source software versus proprietary software— and, in fact, that’s no accident. Cloud computing infrastructures are built, by and large, from open source components. After all, the cloud providers don’t want to make large investments upfront without knowing the financial outcomes, either. One might say that cloud computing is a proxy for end-user open source adoption, since it acts as a middleman to “civilize” open source for end users.

**Murray:** Ok, but do you really want to take the risk of outsourcing our critical resources to a third-party provider?

**Jim:** Not at all, Murray. Cloud computing provides a way to outsource noncritical applications to organizations that are better suited to run them, which will allow our IT department to focus on critical applications. This should be very attractive to you from a cost perspective, and this concept has already been applied throughout companies in many different areas.

**Murray:** You do realize that if we found a cloud provider that we could really trust, and hold them to their SLA, and they are as efficient and responsive as IT, then from a cost/benefit perspective, I may want to modify IT in this company and move our infrastructure ownership and control over resources to a cloud provider.

**Jim:** Of course. This is actually called a “shadow IT” organization, but it won’t happen overnight. First we need to find a provider that we can trust with our noncritical data, and then asses over time whether we want to go the next step. There isn’t a single C-level executive with fiduciary responsibility to his or her company and shareholders that would make a commitment of this magnitude without meeting the providers, doing a deep dive to separate reality from roadmaps of future promises, and establishing a true partnership for success. Frankly, with the limited number of staff I currently have, we can become the governance arm of this relationship. Another value-add that we can leverage is to have the cloud providers provide security and privacy compliance services, avoiding the cost of expensive personnel, hardware, and software to do it. This is very similar to what was provided by MSSPs before the dot-com bust. Murray, I believe you were around then and understand the value; in fact, if I remember correctly, don’t you go back to the Commodore days?

**Murray:** Yes, I certainly do, Jim. There’s some value to having a gray-hair on this board. If you start attending a few more of my staff meetings, you might even start to learn something other than your gear-head stuff.

**All:** <Chuckle.>

**Danny:** All my team knows our current product—do you know how much time it will take for them to learn a new product and what makes it better?

**Jim:** Danny, the new product can do so much more for you—things like pipeline forecasting, executive dashboards, global views by customer category, etc. The learning

curve isn't that steep, and we could help you by providing brown-bag seminars and sessions that show them essential skills first, to get this moving quickly.

**Linda:** Jim, is this software limited just to customer data? What can it do for HR?

**Jim:** Linda, that's the best part. While HR abounds with SAAS providers, there aren't many that fit the cloud model. Most HR service providers today simply don't have the well-defined APIs yet. Today, much integration among HR systems is brute-force replication and synchronization of data. In some ways, the proliferation of various best-of-breed SAAS offerings has simply increased the extent of data replication across systems. In a full-blown version of cloud computing for HR, employee and HR data would stay in place, perhaps even apart from any particular HR service provider. In this idealized version of HR cloud computing, data is integrated or "mashed up" on an on-demand basis. This is a key difference from today's SAAS offerings. Cloud computing implies that data is available from cloud-based data stores, which can be read, updated, subscribed to, and maintained by various authorized HR services—enrollment, performance management, learning, compensation, etc. It doesn't mean that there would be a single HR cloud database for an employer's entire HR function. There likely would be a single cloud database for HR master data and separate stores for data owned or controlled by ecosphere partners. Examples of the latter might be competency content or candidate profile data. Suffice it to say, though, that the version of cloud computing I'm talking about here is not how HR services are provided today. Full-blown cloud-computing for HR is likely a few years away, and skepticism is warranted. However, it merits watching. End users should neither lump it in with SAAS and ASP offerings, nor tolerate loose claims from vendors about providing services from the cloud. This software allows us to customize it so we can have part of it used for managing internal employees as well as customers. We can create

automated reports to help you, and it costs no more to do that. This could help streamline the processes you have and, with the project management and task features, it can be useful to everyone.

**Susan:** What exactly is this cloud you talk about, and where do you think it will be next year?

**Jim:** Well, the Internet is the cloud, and we have a choice of hosting it ourselves since we already own the equipment, or we could outsource all of it. The thing about outsourcing all of it is that those providers will want to collect a monthly recurring charge for providing the equipment and the service. When we ran the numbers for us to outsource the equipment and the service, it didn't pan out as well as for us to continue using our own investment in hardware and hosting the software out of the box. As for next year, it's not going away anytime soon.

**Murray:** How long would it take to set up something like this?

**Jim:** We have a sandbox set up with it now. We've been playing around with it for about three weeks, testing what it can and cannot do, and I'd be happy to show you all how we can benefit from taking this approach.

**Danny:** I'd like to see this before making a decision.

**Murray:** Jim, as the CFO, I'm also responsible for privacy risk and compliance. I'm very concerned about what I've been hearing about a cloud provider's ability to protect or PII and our ability to keep our SAS 70, and ISO 17799 attestation if we go with a third party.

**Jim:** First of all, we've prepared for this by gaining an understanding of what your risk and what compliance requirements really are and how we currently address them on our internal systems. Before anybody asserts that cloud computing isn't appropriate because of risk and not having an answer to "How do we handle that today?," we wanted to be prepared in order to avoid embarrassment. My security operations and engineering manager Mike and I briefed you on our requirements last month in preparation for this meeting.

**Murray:** Yes you did—it was an excellent approach, by the way. Go on. . . .

**Jim:** Of course we also explained our risk assessment mechanism to define levels of risk and make it part of the system development life cycle. Without our preparation in this regard, it would be impossible for us to evaluate whether a given system is a good candidate for operating in the cloud and to assess your potential cloud hosting operators for their risk management practices. With this completed, our projects can have their risk assessments mapped against the cloud provider and a decision can be reached about whether cloud hosting is appropriate for this system. Our cloud hosting risk assessment should be treated as a dynamic target, not a static situation. Since cloud computing is developing rapidly, our current evaluation will probably not be accurate in six months and we'll have to continue the assessment. As part of the external assessment, we'll also assess the cloud provider's compliance with SAS 70, ISO 17799/27001, PCI, and other appropriate standards for our business, and most important, the effect on our continued compliance with these standards.

**Susan:** I agree. Big decisions should take time, to ensure we get it right. We'll set that up later. Jim, was that it?

**Jim:** No. For the finance folks, there's a similar solution for expense reporting and payments. For helping the customer, there's a solution that ties to the contact solution to provide customer support and track customer history. There are a lot of ways we can improve, but I recommend taking one step at a time. We should change one area and see the improvements before trying to change another area. This gives us flexibility to adjust along the way. I do think we can make all of this happen within six months, and if we shave a couple of million in expenses along the way, that's not a bad thing!

**Susan:** Let's do a deeper dive on our security risk in going with a cloud provider. I read recently that, along with PII

protection, this is the biggest concern of organizations and individuals using these services.

**Jim:** As I said before, it's all about assessing the capabilities and integrity of the provider that we choose, in addition to ensuring that they have the security staff and privacy control and protection expertise that can be leveraged to make up skill sets and security hardware and software that either we currently don't have or can reduce if we are using a third party. As a recent Gartner report stated, there are seven primary focus areas that we need to address with the cloud vendor that we chose: privileged user access, as I mentioned earlier, regulatory compliance, data location, data segregation, recovery, investigative support, and long-term viability. Of course, there are also many other items that we have to address with a prospective vendor, which we have included in our assessment report—I can email it to all of you right after this meeting adjourns.

**Danny:** Come on, Jim, are you going to try to tell me that you've accounted for the virtualization security challenges?

**Jim:** Actually, yes, I have, Danny. Of course, as security experts warn, all the vendor activity in the world won't help a company that dives headlong into the cloud without thinking through the risks first, and as long as companies fail to grasp the nuts and bolts of virtualization, dangers remain. As Murray will attest to, we have done our homework in this regard. You must realize that security in a virtual server environment is different, and you have to think differently and use different tools to achieve the same level of security and risk management you had in the past. Operationally and technically, there's a lot more integration and tightening that have to occur. There are even solutions that protect both physical and logical infrastructure, and that can provide application-aware firewalling, inter-VM flow visibility and analytics, application policy control, and intrusion-prevention capabilities.

- Susan:** All right, I've heard enough. You've caught my interest about this cloud computing initiative. Murray and Jim, I'll have my admin set up a follow-on meeting of the three of us, and I want a draft proposal put together along with answers to further questions that I have that will follow with the invite. Does anyone else have anything they want to contribute to this discussion? If not, I think we should move on this as Jim has proposed. Danny and Jim should take some time to go over the sandboxed solution and make sure it can do what we need before we jump in.
- Danny:** Yeah, I'd like to see this dashboard thing as soon as possible.
- Murray:** Any savings we can get in cost cutting will help—believe me.
- Jim:** Thanks, everyone. I'll set it up and send each of you an email to coordinate a showing after Danny and I have had a walk-through with it.

And so it goes, all across corporate America. The point of this Appendix is to show you that the same kinds of questions you would ask are the ones the execs in the board rooms also ask. No person likes change for the sake of change, least of all when it can have a impact on employees and revenue streams. With nearly fifty years of combined management experience between the authors, we can assure you that this meeting only opened the door. The proof of the pudding will be when Jim and Danny have the sit-down and Danny sees how good or bad the proposed solution actually is. Jim knows that Danny won't give carte blanche to a solution without trying to get what he sees as the best he can for his team. Just corporate politics, folks.

Jim knows that Linda walked away from the meeting feeling great hope because he knows how backlogged her department is and how useful this solution can be. Jim thinks this might be a good time to visit her office later today and circle wagons. Murray is easy—if it saves money, he'll go for it. As long as profits go up and costs go down, he'll be happy. After the quarter ends, Susan will be pleased with the savings showing real numbers. That's shareholder value, and the board of directors likes to see such positive changes. Jim knows all of this and has held back the best part of this

solution—it's only the tip of the iceberg, and more savings can be had from the cloud solution. He thinks to himself, "Wait till I spring VoIP on them!"