Edleman Farm Supply was founded in 1948 as a manufacturer of niche use tractors and farming equipment. They've since grown to become the 3rd largest seller of tractors and side by sides in the US and have expanded their business into apparel and accessories. Over the past 3 years, EFS has experienced slowed market growth and revenue numbers. Their competitors seem to be disrupting the strategy EFS relied on for the past 70 years.

Alex Rodriguez, the COO, sees the competitive landscape changing. She's heard of a lot of tech trends that are impacting retail, manufacturing, customer experience, and other areas of her business. Alex doesn't have a technical background but is interested in driving innovation using technology. She's found conversations with the current CIO uninspiring as the primary technology focus of IT has been to "keep the lights on". Alex knows EFS needs to embrace technology innovation to survive and grow their business but doesn't know where to start.

Alex has 30 minutes on her calendar to hear your top recommendations to address shortcoming with the EFS Website. In her own words "Take nothing for granted, we're about as low tech as they come." Please prepare to present a topic for 20 minutes, saving 10 minutes for Q&A. We have a whiteboard as well as a projector. If PowerPoint is your preferred format, please keep the deck to no more than 4 slides (not counting any title, agenda, or end cap slides) to explain your solution. Your solution should clearly state your recommendation(s), the timeline for implementing your recommendation(s), financial implications, and how change will be managed both technically and organizationally. Your presentation should explain the topic in layman's terms and articulate the relevance to Alex's business. Alex has provided a few notes about the business below.

Notes on the EFS Website

Edleman Farm Supply has an externally facing website that contains marketing material on product lines, an e-commerce platform that process orders, and a support site that contains product troubleshooting guides as well as live chat support. The system is currently running out of a floor in the office building servicing as a data center. The retrofitted office space provides 98.5% uptime. Significant uptime losses arise from routine maintenance windows going longer than expected. This can be attributed to any number of issues including a lack of redundancy and inconsistent images and software packages. For instance, web and application servers run on a range of OS's:
- Windows: WS2008 R2 (a couple of old reporting applications are still running on '08), WS2012 R2, WS2016
- Linux: RHEL 6.x, RHEL 7.x,
    - Upgrades to RHEL 8.x are in the project portfolio but leadership is hesitant to take on the risk of outage in such a massive upgrade

The website is best described as a bundle of Windows and LAMP web applications with disparate methods of integrations hidden behind a browser. IIS versions date back to 7.5 on some instances. As a result of the aging tech stacks, website content updates have been significantly limited across much of the business. It's caused the look and feel of the website to become extremely dated even though the content presents some of the highest quality products in the market.

EFS IT does have a small virtualized footprint in the data center. There's a farm of Windows and Linux VMs running on 4 physical hosts running VMware. Only 15% of the website's server infrastructure is virtualized. The other 85% consists of physical servers that are over 7 years old, many of which are running applications for other parts of the business. This has impaired the ability to make changes or upgrades to these servers. The cost of extended support for all the end of life equipment is a growing issue.

As you can probably guess, the CMDB is out of date and used in combination with various manual tracking methods to true up the inventory on a quarterly basis. This process takes about a month and is incredibly burdensome. Configuration management is a mix of manual and automated processes. A few of our brightest RHEL engineers created some scripts to pull and deploy packages. Validating installation is manual and cleaning out old or duplicate directories is also manual. Microsoft SCCM is used to deploy packages to Windows systems. Half of

the Windows servers will receive patches through SCCM. It generally fails on the other half and manual efforts take us the rest of the way. We are months behind in Windows and RHEL patching.

What recommendations do you have regarding our technology that could resolve these issues of:

- excessively arduous operational support;
- poor resiliency / availability;
- costly support / high licensing cost; and,
- any other critical issues you suspect we have?

Additional Details

Corporate Footprint

- Main office is in Louisville, KY with satellite offices in Portland, Syracuse, Austin, and Denver

o Teams are distributed across the 5 national offices. Teams collaborate via email and phone. Many teams, especially buyers (apparel), marketing, R&D, and sales have complained about the difficulty to collaborate over our available platforms.

- Research & development and manufacturing facilities in Bardstown and Lexington

o Our product development timelines often slip. Large development projects are hard to track and really know if we're on or off track. Most new products are developed by creating senior engineers making expensive physical prototypes as a first step.

- "Family Farm" corporate museum and tourist attraction is 30 minutes outside of Paducah

o The corporate values and mission statement all stem from the Farm along with the aesthetic that makes the EFS brand distinctive. The Farm is the nucleus of our brand and culture, but customers barely know it exists unless they happen to be on a road trip past Paducah

Technology Footprint

- 2 physical data centers in Louisville, KY and Portland, Oregon

- A few labs / sandbox environments in AWS and Azure

- Call center in Louisville, KY

Retail Footprint

- 40% of sales are online

o Online visitors can create an account. It saves their payment information and delivery address. We don't collect any data besides that.

- 150 brick and mortar retail stores across the nation

o These stores are a real headache for IT. Some of them have Wi-Fi for employees. It seems like PCs, phones and

POS are going down at different sites every day. We have to send a technician to troubleshoot and repair. It's very expensive.

- 50 Specialty Shops inside of other outdoor retailers including Bass Pro Shop and REI

o These shops have limited inventory assigned. Customers have expressed frustration at not finding the products their looking for in the specialty shop. Some describe it as a "crap shoot" when describing selections and availability of inventory.

EFS Financial

- Provides loans and leases for vehicles and equipment.

o Customers can apply for loans over the phone or at our dedicated stores. Customers have complained about the unavailability of financial services at our Specialty Shops. The President of EFS Financial believes this is our most underutilized offering.