XYZ Insurance's Managed Print Service Project

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Summary

XYZ Insurance started in 2016 as a small operation providing motorcycle insurance. However, in 2018 XYZ Insurance began its low-cost car insurance program and customers from all over the country were looking to use XYZ Insurance services. With the large increase in customer acquisitions, the business has been rapidly opening new offices over the past four years nationwide. XYZ Insurance has opened more than 60 locations across the United States. The founder of the business initially had no intention of expanding out of the few states they began in. The employees were hired to work from a specific location and didn't need to travel between buildings. The technology chosen by the business was implemented with that in mind.

As the business grew, some of the current technology in place had not scaled with it. The list of printers that employees had to choose from became longer with every new office location. Frequent travel between offices made the process difficult. Employees had to physically walk around the building to find a working printer's name, return to their workstation to submit their print job, and then walk back to retrieve their documents. Choosing the wrong printer could mean printing documents in another distant location. It opened the opportunity for documents to be picked up by the wrong individual. Sensitive consumer or employee data had the potential to be mishandled.

Administrators at XYZ Insurance were struggling as they had little insight into how printers were being utilized. They were unable to set limits which lead to accidental large print jobs and increased waste. Administrators had little visibility into specific employee usage and needed additional information to help educate employees on acceptable printer use. Administrators were looking for a way to set alerts. They were only reactionary to ink and paper levels and needed a system that would allow them to be proactive and maintain necessary inventory. As a result, XYZ Insurance contracted JPrint to improve the current printing processes and implement a managed printing service. After forming a project team, they decided that the

scope of this project would include just network printers and that fax services would be addressed at a later date. JPrint worked with XYZ Insurance to install PaperCut, a managed print service, that connected to all their existing printers and simplified the steps employees take to print their documents. The long list of individual printers was replaced with a single virtual printer. XYZ Insurance already had a badge system in place to allow entry into each location. Utilizing the existing system, badge readers were installed on each printer. XYZ Insurance employees submit their print job at their workstation, walk to any printer at any location, and scan their badge to release the print job. Administrators have a website to monitor printer usage, audit individual employee printing histories, and can make informed data-driven decisions. They can set alerts for usage and low ink so that inventory levels are on par with their needs.

JPrint began by assessing the current printers installed across all locations. XYZ Insurance provided a list of all printers currently in place including their network information, make, model, and location. After the list was completed, the project team purchased licensing from PaperCut. PaperCut was then installed on an existing server at the XYZ Insurance headquarters location. XYZ Insurance IT administrators set thresholds for monitoring and alerts in the PaperCut backend website. JPrint set up automated toner purchases for restocking when inventory is low.

XYZ Insurance divides its business into three regions. These regions are west, central, and east. Employees typically travel between locations in their region. One region at a time, JPrint worked with local IT staff at each location to install badge readers on the printers at each location. The printers were then enabled in the PaperCut print server at headquarters and the employee badge IDs were imported into the system. The existing long list of printers on employee workstations was replaced with a single option. XYZ Insurance sent employees instructions detailing the new process and how to print moving forward. The project was completed when administrators had

proper monitoring set up, all printers at each location were linked back to the managed print server, and employees can now seamlessly scan their badges to print at any location.

Review of Other Work

Optimizing a company's printing infrastructure can be a significant challenge. This can be compounded by businesses that have many locations spread across large distances. In a case study analysis by Louella Fernandes and Clive Longbottom (2013), they describe a global utility organization's implementation of a managed print service (MPS). This organization has over 300 locations around the world. Implementing an MPS addresses "both security and cost recovery" by having users authenticate themselves before they release their print jobs (Fernandes & Longbottom, 2013). XYZ Insurance now has the same benefit as employees have to identify themselves with their badge when they are physically in front of the printer attempting to print. The MPS enabled cost recovery by "providing centralized visibility of print cost and usage" (Fernandes & Longbottom, 2013). The utility organization had the added benefit of the MPS backend website that provides reporting and alerts. This increased visibility is helping XYZ Insurance administrators monitor their organization's printing and make informed purchasing decisions. Businesses have a responsibility to properly handle their employee and customer data. Ben Jenner-Hurford is the IT infrastructure lead at Porter Dodson, a mid-sized UK-based law firm. Before implementing a managed print system, Ben noted, "in law, security is extremely important. We were opened up to risk when prints were left on the printer" (Nestor, 2019). Like Porter Dodson, XYZ Insurance had the same concern. XYZ Insurance employees work with sensitive customer data on insurance claims and contracts. After the completion of the project, the potential for documents to be left in the printer was eliminated. Employees can only release their documents after they've scanned their badge while physically standing in front of the printer. Maintaining the ability to print can require many people to be involved. A CDW article analyzing managed print services (Hennick, n.d.) notes, "At many organizations, print

exists in a sort of limbo between IT and operational departments." IT staff may be responsible for troubleshooting the equipment, but the operations teams may be responsible for maintaining inventory and ordering additional supplies when they are low. This disconnect can cause disruptions for employees who need time-sensitive documents and tie up IT staff as they are troubleshooting several other devices. Although these tasks can be simple, using an MPS can help automate this process and reduce the associated labor costs (Hennick, n.d.). XYZ Insurance is now using the managed print service to automatically order toner when a certain level is reached. The MPS sends email alerts to XYZ Insurance operations teams when it's time to fill the printer with more paper and notifies IT if a printer isn't functioning properly or needs a new toner cartridge. Automating this process has lowered the number of people needed to maintain the printers, ensures supplies are always available, and has reduced downtime.

Businesses are searching for ways to simplify their print process for employees and reduce the associated costs. John Meyer, the Director of IT for Wisconsin Lutheran College, explains how after they implemented the ability for students to swipe their student ID card to release their print job, the functionality "cut paper usage in half almost immediately" (Glaser, 2019). With no managed print service in place, Meyer says, "some print jobs were sent multiple times, piling up on printers and leading to waste and frustrated users" (Glaser, 2019). Following a similar approach, XYZ Insurance employees have a badge they must scan to enter any location. Employees now use the same badge to authenticate themselves and release their documents at the printer. This process has reduced waste and links print jobs to individual employees for any necessary auditing in the future.

XYZ Insurance was looking for a solution for employees who travel from location to location and need the ability to print anywhere. Ofer Bar-Zakai, an Engineering and Operations Manager at Google, wrote about one of the key elements they needed was "the ability for a user to press print in Google's New York office and collect that same print job in their London office

after travel" (Bar-Zakai, 2022). This is exactly what XYZ Insurance was seeking to implement. Employees print to a unified print queue and never have to worry about which printer they need to select at their workstation. Similar to Google, XYZ Insurance's managed print service gives employees the freedom to choose any printer, at any location, and at any time.

To reduce waste, some organizations are looking for a system that allows them to control how many pages can be printed at a time. Chris Hill is the IT Manager at The Colchester Royal Grammar School in Essex, England. The school set a limit to "restrict students from printing jobs that were longer than 10 pages." After installing a managed print service, it "slashed wasted paper generated by student printing by tenfold" (Hill, 2010). XYZ Insurance needed a similar feature to limit print jobs that may have been set incorrectly or printed by mistake. Insurance contracts typically have high page counts leading to a higher incidence of waste. After installing PaperCut, XYZ Insurance limited print jobs to 50 pages. Although this is much higher than the school's restriction, employees at XYZ Insurance often have batches of claims that need to be printed. The size limit has stopped accidental print jobs that weren't adjusted correctly and reduced overall supply waste.

As a company grows larger and expands nationally, it can become difficult to manage the needs of traveling employees. RE/MAX Results is a real estate company with 1,000 users and approximately 40 printers in 27 locations. Jack Marvin, an Assistant Controller at RE/MAX Results, writes about their employee's need to print at any nearby office without having to travel back to their specific home office (Marvin, 2022). When RE/MAX installed PaperCut, "The vision was to give all of our agents the ability to print in any of our offices" (Marvin, 2022). XYZ Insurance employees travel between locations and meet with customers regarding their claims. Like RE/MAX Results, XYZ Insurance needed a system that allowed the connection of a large number of devices spread over many locations. Additionally, the system needed to give employees the ability to visit any nearby office to release their print jobs. After the

implementation of PaperCut, XYZ Insurance's printers in all 50 states are connected and employees can quickly print their documents regardless of their home office location.

Changes to the Project Environment

Fortunately, XYZ Insurance decided early on to standardize the equipment used at each location. As a result, each location uses the same printer hardware. There is at least one HP LaserJet Pro M404dn and one HP Color LaserJet Pro MFP M479fdn printer on each floor in every building. XYZ Insurance has 145 printers across 63 locations. Each printer is in a shared space connected to the network, assigned a static IP address, and mapped with a DNS hostname. A sign with the printer's hostname was posted near each printer so employees can choose the correct printer at their workstation when submitting documents. Using a thin client to remote into a Windows virtual desktop environment, employees chose the matching hostname from an increasingly long list.

After the project was completed, the list has been replaced with a single virtual printer option. Using the existing badge system in place, a badge reader was installed on each printer at every location. Employees scan their badges to authenticate themselves and release their print job. Administrators now have a central system to audit printer use and set limits. Local IT teams receive alerts to replace low toner cartridges and operations teams receive email reminders to refill the printers with paper when they are near empty.

Methodology

In collaboration with the XYZ Insurance IT teams, JPrint used the ADDIE methodology model for the project. XYZ Insurance had been successful in the past using this method and had requested

JPrint to follow the same plan. The ADDIE project methodology consists of five separate phases. From start to finish, the phases are Analysis, Design, Development, Implementation, and Evaluation.

During the analysis phase, JPrint met with XYZ Insurance to form a project team, understand the current environment, and demonstrate their printing processes. XYZ Insurance walked through the entire process from start to finish and highlighted the pain points. The project team determined that the scope of the project would include just the network printers and separate fax services will be addressed at a later date.

JPrint provided XYZ Insurance with their recommendations during the design phase. A managed print service created by PaperCut was the chosen system. It was determined that the system will be housed in the XYZ Insurance headquarters data center. Administrators would set alerts for IT to replace low ink cartridges and create automated purchase orders. Additionally, they would set alerts for the operations teams to refill the printers with paper when they are running low. The badges used by employees to enter buildings would also be used to authenticate themselves when releasing their print job. The final step was to replace the current list of printers in the employee's workstation with a single virtual printer.

XYZ Insurance had already given JPrint some preliminary background information regarding the printer makes and models that are currently used in the environment during the analysis phase. However, in the development phase, XYZ Insurance provided JPrint with the network information for each printer including MAC address and static IP address. They provided the location including the building and floor to gain a full picture of where each device was and to create an accurate device list in the new system. The necessary licensing was acquired from PaperCut and the software was installed on existing hardware at headquarters. Administrators familiarized themselves with the new system and set necessary alerts. XYZ Insurance worked with their badge system vendor to export the current employee IDs for import in the new PaperCut managed print system. JPrint ordered and shipped compatible badge readers to each XYZ Insurance location.

The implementation began by piloting the new system at a single XYZ Insurance location. The existing printers were linked to the new managed print system and JPrint worked with local IT staff to install the new badge readers and update the posted signage for employees. XYZ Insurance sent communications to employees to bring awareness to the change and provided instructional material. When it was determined that the new system was functioning as intended for one location, the rest of the region's printers were linked to the new system. After the first region was online and connected successfully, the other two regions followed.

Bringing the project to a close, the evaluation phase included testing the process from start to finish. The project team with representatives from XYZ Insurance and JPrint submitted a print job in one location, traveled to another location, and released the print job to validate success. XYZ Insurance has since gathered feedback from employees to determine if there were any inconsistencies or provided additional employee training when necessary.

Project Goals and Objectives

	Goal	Supporting objectives	Deliverables enabling the project objectives	Met/Unmet
1	Understand current printer hardware	1.a. Gather all existing printer hardware information	1.a.i. Create a spreadsheet with existing printer hardware information and location details	Met
		1.b. Obtain printer network information	1.b.i. Gather hostnames, MAC addresses, and static IP addresses associated with each printer	Met
2	Upgrade printing processes	2.a. Set up PaperCut managed print service	2.a.i. Purchase licensing from PaperCut	Met
			2.a.ii. Install and configure PaperCut managed print service on existing server at headquarters	Met
			2.a.iii Import existing printers	Met
			2.a.iv Set alerts, limits, and automated toner purchasing	Met
		2.b. Utilize existing badge system	2.b.i. Purchase compatible badge reader hardware and ship to each location	Met

			2.b.ii. Obtain export of employee IDs from existing location entry badge system	Met
			2.b.iii Import existing employee badge IDs into managed print service	Met
		2.c. Update employee computers	2.c.i. Replace existing printers in employee Windows virtual desktops.	Met
		2.d. Test and validate the print process	2.d.i. Perform a test print on site	Met
			2.d.ii. Perform a test print and travel to another location	Met
3	Provide employee training	3.a. Send communication	3.a.i Send email communication to employees informing them of the change	Met
			3.a.ii Email instructional information to employees	Met
		3.b. Update posted signage	3.b.i. Update posted signs near printers to remind employees of the new process	Met

Goal 1: Understand current printer hardware. While XYZ Insurance had a general idea of the hardware currently in place, they didn't have a complete updated list of all printers at each of their locations. Additionally, to connect the printers with the new managed print system, they needed to gather network information for each printer. Goal one was completed when the project team had a full detailed spreadsheet with all necessary printer attributes. This goal included the following two objectives:

Objective a: Gather all existing printer hardware information. XYZ Insurance directed their local IT staff to create a list of printers at their local office including hostname, make, model, building, and floor. This was a crucial step, and the objective

was complete when there was a full understanding of what and where each printer is so that they could be properly entered into the new managed print system.

Objective b: Obtain printer network information. The XYZ Insurance IT network team updated the shared spreadsheet to include network information for each of the respective printers. Using the hostname provided by local IT staff, the network team gathered the matching network information. This objective was complete when the network team had entered all the information and matched it to their locations.

Goal 2: Upgrade printing processes. This was the main goal for the entire project. XYZ Insurance's printing processes had caused frustration for employees by wasting time and resources. By investing in a new managed print system, employees now have a simple process for releasing their print jobs using their badges. Additionally, IT administrators have better controls and insight into how their printers are being utilized. Administrators have created email alerts for the proper IT teams to replace missing toner cartridges and notify operations teams to refill the printers with paper. The second goal was considered complete when the new PaperCut managed print system was set up, all printers were connected, employee computers were updated, and the system was tested to verify employees can print using their badges. Goal two included four objectives:

Objective a: Set up PaperCut managed print service. To set up the new system, the project team contacted PaperCut to purchase a license. PaperCut was installed, the existing printers were imported into the new system, and IT administrators configured the system to set limits and alerts. JPrint set up automated purchasing of toner for restocking. This objective was complete when the new managed print server was set up, existing printers were connected, and automatic restock was implemented.

Objective b: Utilize the existing badge system. Employees are provided with a badge when they go through new hire orientation. The badge is used to enter each

location. This system is managed by a third-party vendor and XYZ Insurance's building security team. XYZ Insurance is now utilizing its badges to authenticate employees when releasing their print job. This objective was complete when the new badge reader hardware was installed, and the project team obtained existing badge information from the vendor.

Objective c: Update employee computers. After physically walking to the printer to obtain the hostname, the employee had to scroll through a long list of printers to pick the matching name. After installing the new system, the list was replaced with only one option. This objective was completed when employee virtual desktops were updated to remove the old list and replaced with the new virtual printer.

Objective d: Test and validate the print process. The project team performed tests to verify that the technology is working as intended. The tests were completed within one location as well as from one location to another. This objective was complete when a successful print job was performed at one site as well as when traveling to other locations.

Goal 3: Provide employee training. While this was a welcome change, employees needed to be aware of how they would be affected before the new system was implemented. Providing the information ahead of time helped to minimize any disruption that the new process could have caused. This goal was complete when employees had received communication about the planned changes and were provided with instructions to follow the new process.

Objective a: Send communication. To keep employees informed, email communications were sent before implementation. The project team also sent instructional documentation before the project was live. The objective was complete when employees had been informed of the coming changes and had a guide for the new process.

Objective b: Update posted signage. Near each existing printer, XYZ Insurance has posted helpful signs to guide new employees. This objective was complete when the existing printer names and instructions were updated for the new system.

Project Timeline

Milestone or deliverable	Planned Duration (hours or days)	Actual Duration (hours or days)	Projected start date	Anticipated end date	Actual start date	Actual end date
Meeting – Project Start	1 day	1 day	5/2/2022	5/2/2022	5/2/2022	5/2/2022
Create a spreadsheet with existing printer hardware information and location details	2 days	2 days	5/3/2022	5/4/2022	5/3/2022	5/4/2022
Gather hostnames, MAC addresses, and static IP addresses associated with each printer	1 day	1 day	5/5/2022	5/5/2022	5/5/2022	5/5/2022
Purchase licensing from PaperCut	5 days	7 days	5/6/2022	5/12/2022	5/6/2022	5/16/2022
Send email communication to employees informing them of the change	1 day	1 day	5/12/2022	5/12/2022	5/16/2022	5/16/2022
Install and configure PaperCut managed print service on an existing server at headquarters	1 day	1 day	5/12/2022	5/12/2022	5/17/2022	5/17/2022
Import existing printers	2 hours	2 hours	5/13/2022	5/13/2022	5/18/2022	5/18/2022
Set alerts, limits, and automated toner purchasing	3 hours	3 hours	5/13/2022	5/13/2022	5/18/2022	5/18/2022

Purchase compatible badge reader hardware and ship to each location	7 days	7 days	5/18/2022	5/26/2022	5/16/2022	5/24/2022
Obtain export of employee IDs from existing location entry badge system	3 days	3 days	5/18/2022	5/20/2022	5/16/2022	5/18/2022
Import existing employee badge IDs into managed print service	1 hour	1 hour	5/19/2022	5/19/2022	5/19/2022	5/19/2022
Replace existing printers in employee Windows virtual desktops.	1 hour	1 hour	5/24/2022	5/24/2022	5/24/2022	5/24/2022
Perform a test print on site	1 day	1 day	5/24/2022	5/24/2022	5/24/2022	5/24/2022
Perform a test print and travel to another location	1 day	1 day	5/24/2022	5/24/2022	5/24/2022	5/24/2022
Update posted signs near printers to remind employees of the new process	1 day	1 day	5/24/2022	5/24/2022	5/24/2022	5/24/2022
Email employee instructional information	1 day	1 day	5/24/2022	5/24/2022	5/24/2022	5/24/2022
Meeting – Project End	3 hours	3 hours	5/25/2022	5/25/2022	5/25/2022	5/25/2022

Although the project had unforeseen delays, the project team was able to adjust their schedule to stay on track. There was a two-day delay in receiving the licensing from PaperCut that postponed the initial installation of the managed print service. As a result, the communication to employees regarding the upcoming changes went out the same day that licensing was received. The installation and configuration of PaperCut began the day after the license was received. The import of the existing printers, alert/limit settings, and automated toner restock were also delayed as a result. To stay on track, XYZ Insurance reached out to the third-

party badge vendor to obtain an export of the existing badge IDs earlier than anticipated to recover lost time. JPrint also began shipping badge readers the same day licensing was completed. As a result, the timeline recovered when the employee IDs were imported into the new system and the project concluded on schedule.

Unanticipated Requirements

The only unanticipated requirement of the project was related to the badge system. Employees occasionally leave their badges at home by mistake and are typically allowed into the office after the Building Security team verifies their identity. However, because of the new print system, the Building Security team will need to provide the employees with a temporary badge if they need to print. Their team now has a process in place to set up a temporary badge with the employee's existing ID number so they can use it to release their print job. The employee is then responsible for returning the temporary badge before leaving the office.

Conclusions

The XYZ Insurance managed print service project has completely changed the way employees print. Employees no longer have to worry about printer names or whether the printer has paper and toner. There is no longer a potential for their documents to be misplaced before they can retrieve them from the printer. Administrators have a central website they can utilize to better understand how their printers are being used and have set limits to reduce potential waste. Local IT staff and operations teams receive alerts when it's time to refill the printers with toner or paper. The project team has continued to monitor the system and is seeking feedback from employees to determine if any concerns need to be addressed. Although there was an unanticipated issue around the badging system, the Building Security team has a process in place to provide badges to employees who need them. The project was complete when an employee

successfully submitted their print job in one location and released it using their badge at a different location.

Project Deliverables

Appendix A shows two examples of alerts generated by the new PaperCut system. When a printer's toner level drops below five percent, an email alert is sent to the associated building's IT staff. When a printer's entire paper tray capacity drops below fifteen percent, an email alert is sent to the associated buildings operations team. Both alerts allow the support teams to proactively maintain the printers before employees run into any issues. Employees submit their print jobs knowing that the printers have the supplies necessary.

Appendix B is a screenshot of the "Devices and Printers" in the Windows control panel. These are the devices listed in the employee's Windows virtual desktop. The first screenshot shows the long device list that employees had to choose from before the new managed print service was installed. The second screenshot is after the project was completed. The list of printers was replaced with a single "XYZ Insurance Virtual Printer" option. Employees print to this device in Windows regardless of where they choose to release their print job physically.

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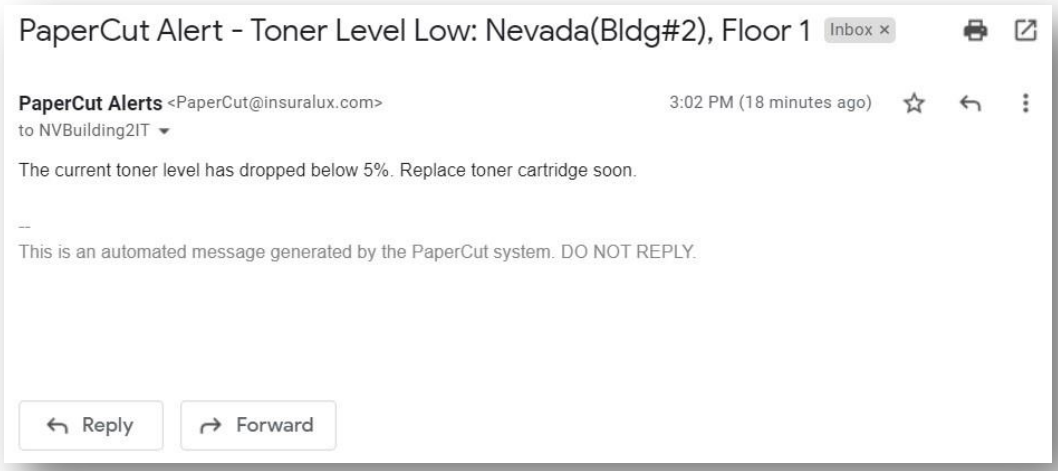
Appendix A

Low toner and paper

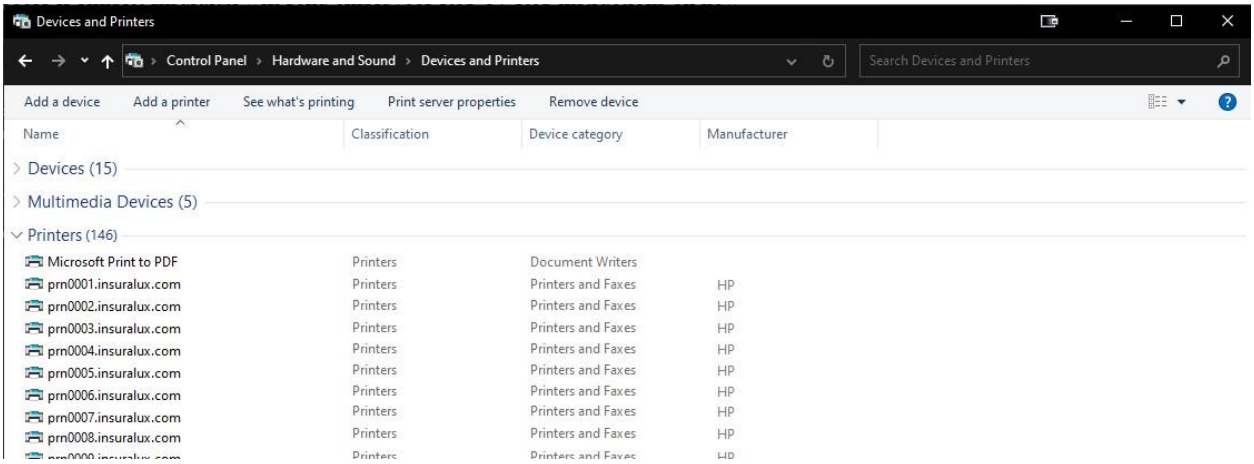
alerts



Appendix B

XYZ Insurance printer device list before and after

Before:



After: