Virtual Machine Server For Sap S4hana Cloud Print Manager

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ABSTRACT

Enterprise resource planning (ERP) requires supporting facilities to be able to make a major contribution to users or companies. One of the widely used ERP is SAP. The cloud-based version of SAP is S4hana. This paper describes how to migrate SAP ERP Central Component (ECC) system to S4hana on the sales and distribution (SD) module and simultaneously build a virtual server to provide a solution by mass printing on the S4hana side and the printout will be displayed on the server side. The method used is by using the System development life cycle (SDLC) on the development side of the virtual server and using the SAP active method when implementing or migrating the SAP ECC system to S4hana. The result is the process of interaction between S4hana with the virtual machine and then the user will get a bulk print that is stored in the public folder

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1. Introduction.

Printing is the process of producing a quality image on paper or other media, using a piece of printing equipment or ink, with the help of other printing presses [1]. Higher-level corporate leaders recognize how important the impact of information technology solutions on business processes and corporate culture is and are willing to delegate the performance of most employee tasks which include the automated processing of information-by-information systems [2]. In the era of Industry 4.0, several interconnected digital technologies emerged [3]. Cloud computing is a new radical paradigm shift that evolved from the highest need for hosting and providing many things electronically as a service over the Internet. The use of cloud computing in an organization facilitates the dissemination and access to broader information [4] The number of devices connected to the internet of things (IoT) increases significantly [5]. Recently, wearable devices have become an important part of human life [6]. The end goal is not only to provide enhanced but also innovative computerized services for every user at home to professional workers in the office [7] Cloud computing is intended with the aim of providing computing facilities consisting of storage, databases, servers, and intelligence above the clouds [8]. Receives data from [9], any desktop computer or handheld devices such as android phones, and tablets also

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include very distant sources in the sense in the form of the cloud and subsequently sent to the computer attached to the printer. Now, this attached printer prints the data sent on it. This setting indicates that to perform printing operations, a desktop computer is a must that is connected to the traditional printers hence by moving towards technology the advancement of the need for desktop computers is discarded, and using more advanced technology by utilizing cloud services [10]. Furthermore, NIST defines cloud computing as a model for enabling ubiquitous and convenient network access, user requests to a configurable set of computing resources can be networks, servers, storage, applications, and even services that can be quickly provisioned and released. with minimal effort management or service provider interaction. The cloud model consists of five essential characteristics, which contain three service models, and four deployment models. [11]. Five characteristics of cloud computing consist, first are self-service on request means consumers can ask a provider to provide computing capabilities, such as server time and network storage, as needed automatically without requiring human interaction. The second is Extensive network access. Capabilities are available over the network and accessed via standard mechanisms that drive use by heterogeneous thin or thick client platforms such as mobile phones, tablets, laptops, and workstations, third is Resource collection. The provider's computing resources are pooled to serve multiple consumers using a multi-tenant model, with different physical and virtual resources dynamically assigned and moved according to consumer demand. There is a sense of location independence where the customer generally has no control or knowledge over the exact location of the provided resource but may be able to determine the location at a higher level of abstraction. Examples of these characteristics are resources including storage, processing, memory, and network bandwidth. Fourth is fast elasticity. Capabilities can be elastically assigned and released. To consumers, the capabilities available for provisioning often seem limitless and can be customized in any amount at any time. With the features that exist in cloud computing, it is very possible to be able to activate the print server process that is activated on a virtual machine, print server this feature includes the necessary tools to allow to manage one or more print servers this feature can be enabled in the MMC Print Management snap-in menu [7] Cloud computing is basically designing a computing architecture concept, with the basic concept of how to separate Applications, Operating Systems and hardware from each other [12]. This app really helps printers increase their production in several ways [13]. Files are sent safely to the printer via the web, whether the printer is in the same room or in a different location [14] SAP S4Hana provides a single print to be able to generate print invoices then this server will be connected to the SAP. Cloud print manager to be able to collect printing results and be in the sales and distribution (SD) module [15]. This print server will be connected to the SAP cloud print manager as a solution to be able to collect printing results and be in the sales and distribution (SD) module so that the mass printing results can be retrieved by users after the printing process through the SAP Cloud print manager is declared successful.

2. Research Methodology.

Virtualization has been widely used by enterprises to enable multiple operating systems of various types to utilize a single piece of hardware [16]. A virtual machine (VM) is an operating system (OS) or application environment installed on software, which emulates dedicated hardware [17]. Several types of Virtual Machine applications used are analyzed by comparing their respective specifications. several types of Virtual Machine applications, namely Oracle Virtual Box and Microsoft Virtual PC [18]. The host operating system can run many virtual machines and share systems hardware components such as CPU, controller, disk, memory, and input or output between virtual servers [19]. The building of this virtual machine is intended only for the purpose of keeping the SAP cloud print manager application. This virtual machine development stage still requires a physical server machine. The discussion in this paper will combine the preparation process for installing virtual machines when the implementation of S4hana for the cloud begins because this is an inseparable package. Preliminary studies that have been carried out by several researchers either explain the implementation of the virtual server or also specifically discuss the role of the print server. In a paper made by [20], they use proxmox as a virtual server in that proxmox provides a local desktop and several nodes. In the node, the operating system will be installed according to the needs of the user. Next post by [21] they build the file sharing service that allows copying files from the web server to the client's computer via an online internet connection. It is implemented by creating web applications and hosting them locally on servers. In this web application, users can upload and download files so the Server is a real-tested environment and reliable performance. In addition to the Windows operating system, many researchers are conducting research by building a Linux-based server, this is done by [22] to build a server as a data storage area. The author uses the SAP Active method for the SAP4hana cloud implementation by adopting the SAP Active Method following six phases which provide real-time guidance and support throughout the SAP solution project life cycle. There are six stages used in the SAP Active

method, namely [23-25] discover, prepare, explore, realize, deploy and run. More detail regarding the six stages of SAP activity is mentioned in figure 2.1.
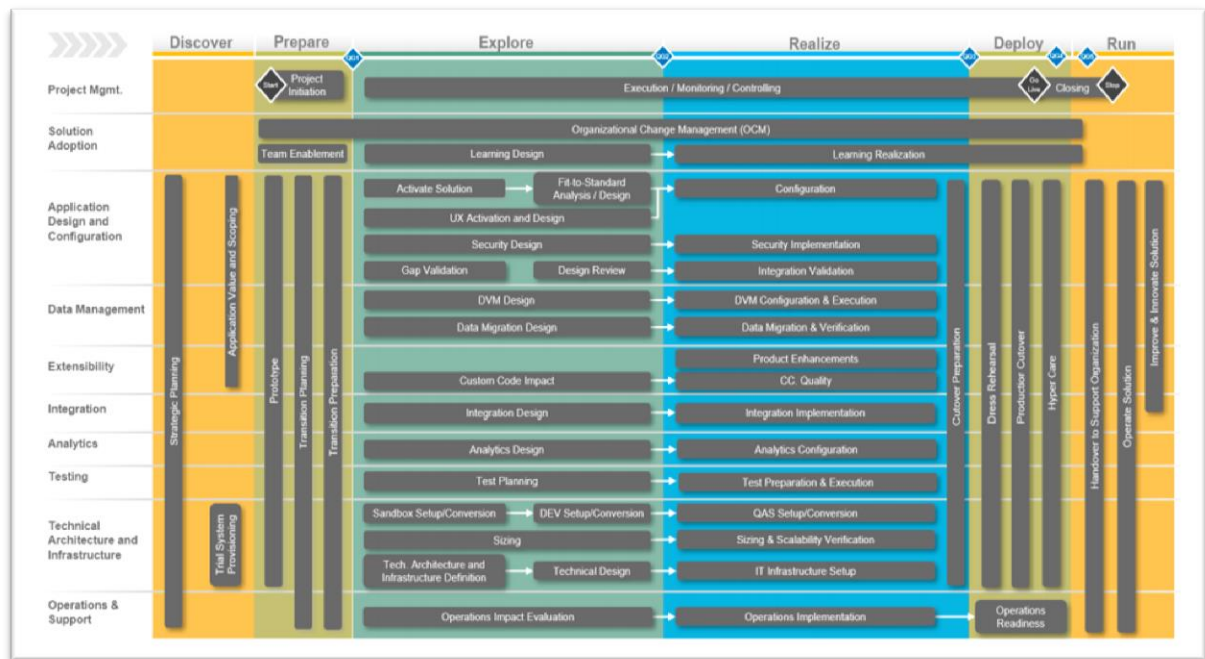

Figure 2.1. Stages of transition to SAP S/4HANA [15]

In accordance with the title taken, the explanation for building the virtual server will follow the stages in system development, namely the System development life cycle. Referring to SDLC stages and describe as follow recognition of a problem or requirements, feasibility study, analysis of the problem or requirements, system design, system testing, implementation, and maintenance. This is the first phase of the system development life cycle. This is the most significant stage for the success of the project. The problem becomes the main interrogatory of this stage, this direction to initial research that if the problem is solved by enhancing the existing system or organization requirements to replace it. This stage is further divided into two the first phase investigates, identified, prioritized, and arranged the problem domain. The second phase initiates the project for the problem domain and a detailed work plan is made. The further step is the feasibility study, written or oral report is made when the feasibility study takes place within the time limit, by examining the economic, technical, and behavioral factors of the feasibility study responses. A feasibility study is conducted to select the best system that meets all barriers and conditions. The main target of this phase is to define whether it is worth developing the new system. System analysis is a process of accumulating realistic data, understanding the business regulation, and building a logical model of the new required system. System analyst works on recognizing a problem and feasible recommendation for recovery of the system functioning. This stage is totally based on the document produced by the analysis stage about the requisite system. Remember the reference of the analyst the designing of the system commences. The determinant phase in the development of a system is till the time we are dealing with logical system designs but as resultant it will be converted into the physical system design. System Testing stage, the system is developed and accepted by management and the user but still is not ready for implementation as it has to pass the testing phase. A successful test guarantees that the system is ready to use. It is a crucial stage for the actual success of a system. Further is the implementation and maintenance stage, after the user agrees to the new system, the implementation phase begins. The phase where presumption or requirements turn into praxis. In this stage, the users are trained in the system and start using the new system. However, not all pages are followed in the implementation of the virtual machine, there are several parts that have been done previously so that it does not need to be discussed in detail in this paper.

3. Result and Discussion.

To start implementing a virtual machine, good preparation is needed to all system and user needs are met in accordance with existing business needs. Refer to SDLC steps, the project starts with problem identification followed by analysis, implementation, and testing, below are some steps to do

3.1. Organizational needs

This stage begins with the process of things gone wrong and things went right. A tried-and-tested approach that is proven to work is to focus on TGW (things gone wrong) and TGR (things go right).

S4Hana - Project Implementation			Organisational Knowledge Continual improvement - Lessons Learned - TGR & TGW				NO : Rev No.0 Date.
Unit / Dept.							Page no. 1
NO	Date or Month	Process	Things Gone Right (TGR) – Appreciable points	Things Gone Wrong (TGW) Needs Improvement (R-Repeated & F- First time)			Sign.
			Improvements with measurable benefits , whereever applicable	Description	Action plan to improve&Target	Status	
1	Nov-20	MM (PUR) -PO	The Display looks more better, user friendly, WEB Based Application	in S4HANA, for signature in PO, still use manual signature. no different with SAP P60. System only able to adopt one Signature for all Locations	automatically to have a signature on the PO for each location	Open	
				Because of diferent of the system to create PO to Germany for RM still using P1A.			
2	Nov-20	SD (sales)- Order Processing		In S4Hana freight cost is taxable	We need freight cost to be non taxable	Open	
3	Nov-20	Finance (FICO)	The Display list Aging Ap with detail (aging AP)				
			Analisis Margin sales more detail (J55 Margin Analysis)				
			Decription detail Sales condition (34B Statistical Sales Conditions)				
				List Sales the display Report not complete as SAP P60		Open	
				KE-24 at SAP P60 data sales complete with cost sales and Margin		Open	
				Running Cost Allocation , need improved		Open	
				SAP P60 more simple running cost allocation		Open	
4	Nov-20	PPIC		Trial account does not have menu, so cannot trial for the first time		Open	
				we cannot key in PLK data in the shop floor computer, we did not use this function in taic plant, JKT key user want to inupt PLK data in shop floor computer		Open	
				Not including WMS module		Open	

Figure 3.1. Organizational Knowledge Continual Improvement

3.2. Test Connection.

The next stage is to test how quickly the user can access the SAP S4hana cloud application by accessing the available link. Applications and databases are stored in the cloud using Alibaba cloud. The test is carried out with Firefox and Microsoft Edge browsers by accessing the properties, more tools, developer tools, and networking sections so that you can know how fast the user's ability to access the application is with the available bandwidth.
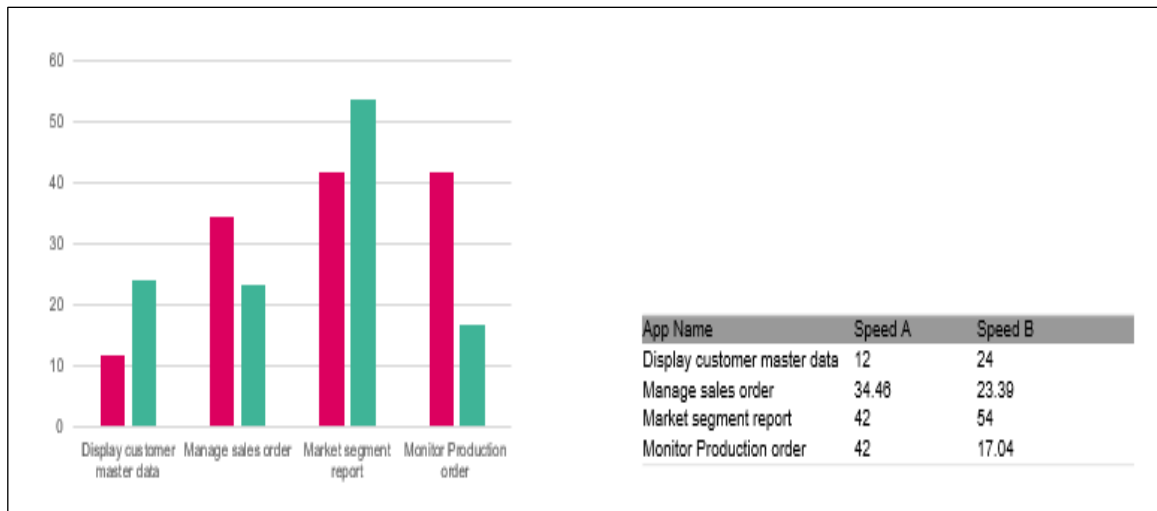

Figure 3.2. Results of checking the access connection to the cloud server

3.3. Access to S4Hana Cloud

Every user who has registered to the company domain and has access to SAP will be able to access the SAP server. The connection process is through a VPN connection within the company or a VPN client for users who are outside the company environment by accessing the link provided by the company. Each user has different access, to be able to access the billing process, the user must have permission to access scheduled billing output. The view of access to billing is listed in Figure 3.3
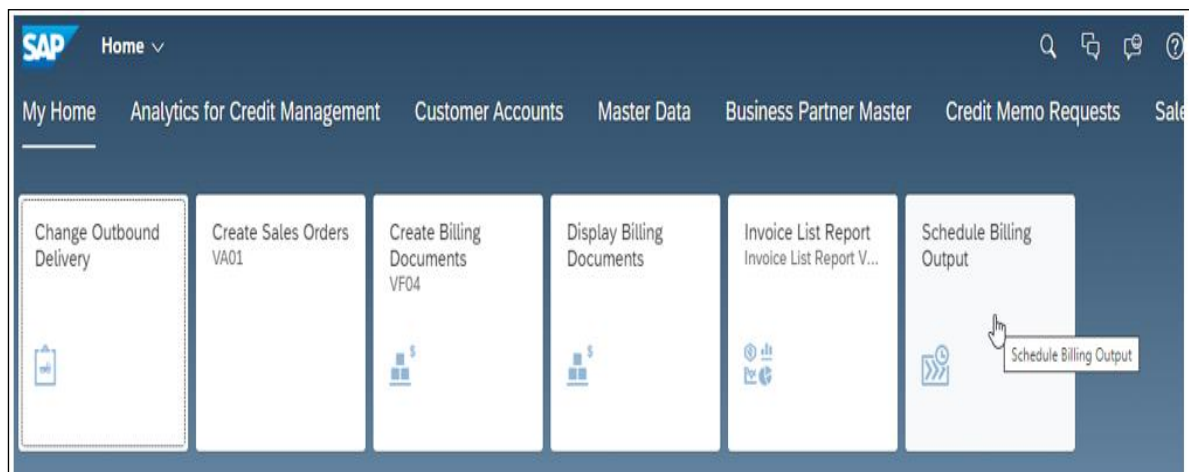
Figure 3.3. Access to SAP4Hana

The next stage is to determine the template and schedule, the user must determine the template and schedule to be able to mass print on the SAP system which will later be transferred to the print manager server and will get the print billing results collectively in the folder that has been created on the server.
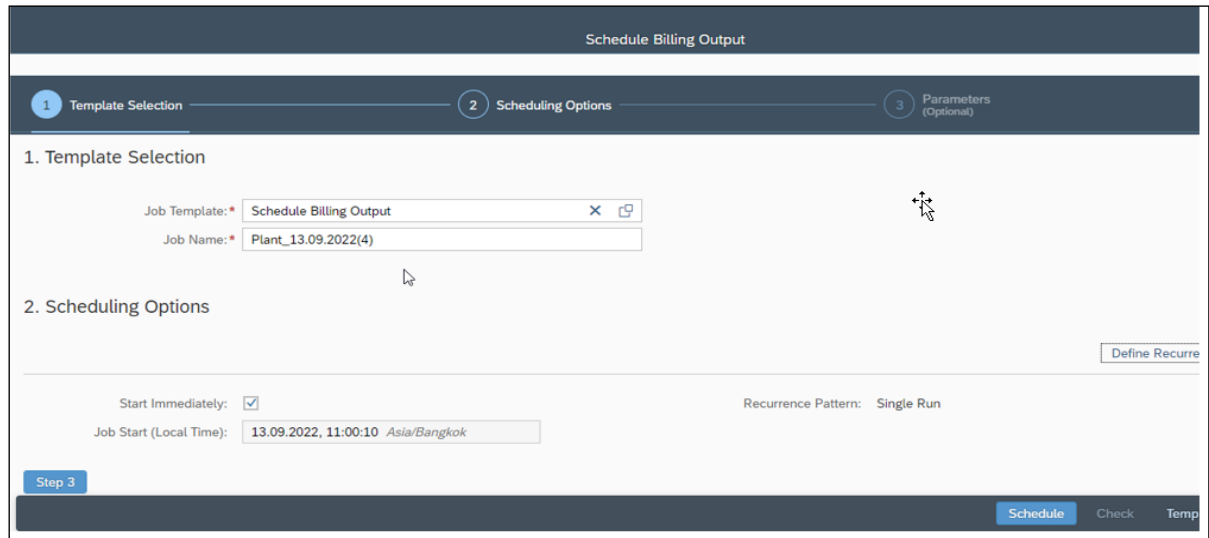
Figure 3.4. Define Template Selection and Scheduling Options

The scope of determining the output and billing number should be done by determining the existing sales organization because in general the determination of the sales location has been determined at the time of determining the distribution and warehouse locations. Errors in determining the location of the sales organization will have an impact on errors in getting the desired output, the results of the selection and determination of output will be listed in figures 3.5 and figure 3.6.

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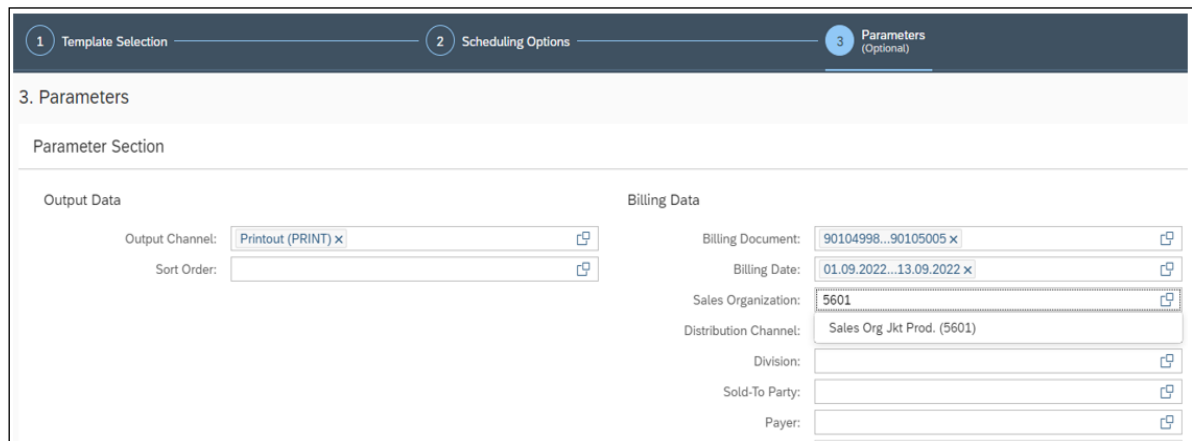
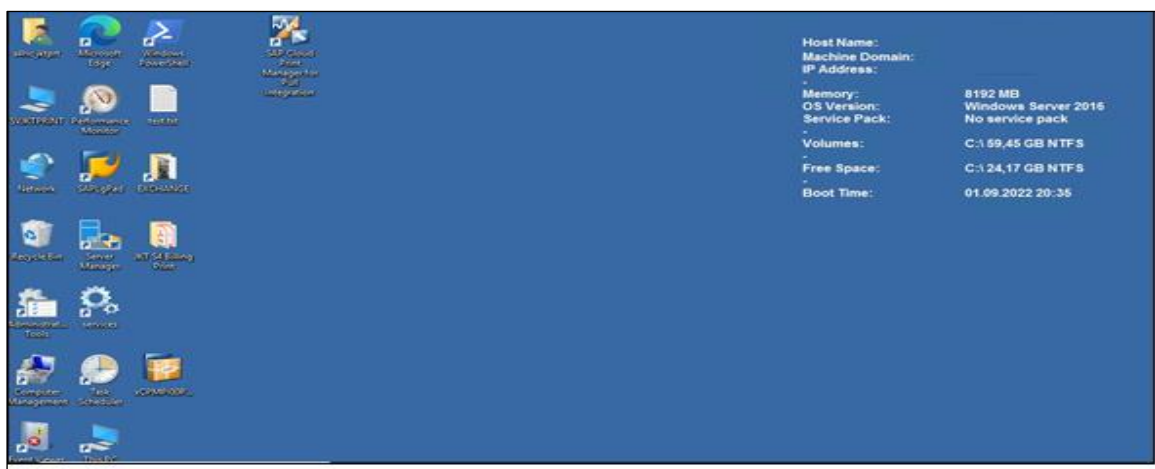Figure 3.5. Define Output Parameter

Figure 3.6. Print Result

Figure 3.7. Virtual Machine Server for S4hana Cloud Print Manager.

Creating a Virtual server refers to the needs of the company. The virtual machine, hereinafter referred to as a VM, begins by specifying a private IP address that will be used for the VM, for example, 10.10.X.X. determining the version of the windows server greatly determines the quality of a server. One way that can be used to create a VM is to use a VMware workstation. The installation process will be no different from installing an operating system on a physical machine. Determination of the installation source can be done by using a disc or iso image. The next step is the presence of a virtual disk, memory, network adapter, USB controller, and display. The results of the virtual machine installation as shown in Figure 3.7. To be able to connect the server to the SAP4hana cloud, the VM requires an internet connection, and then the SAP cloud manager print server application needs to be installed and configured. Precise assignment of cloud server addresses must be defined, and two services are required, namely SAP Cloud Print Service and SAP Cloud Print watcher. Cloud print manager can be downloaded in the SAP application with additional authorization further the installation process is carried out. In the last stage is Making Communication Settings and the next stage is creating printing and in the last stage is SAP Cloud Print Manager for Pull Integration. A successful print server connection process will be connected and the printout creation process in S4hana in Figure 3.6 will be printed on the VM with the results in Figure 3.8.
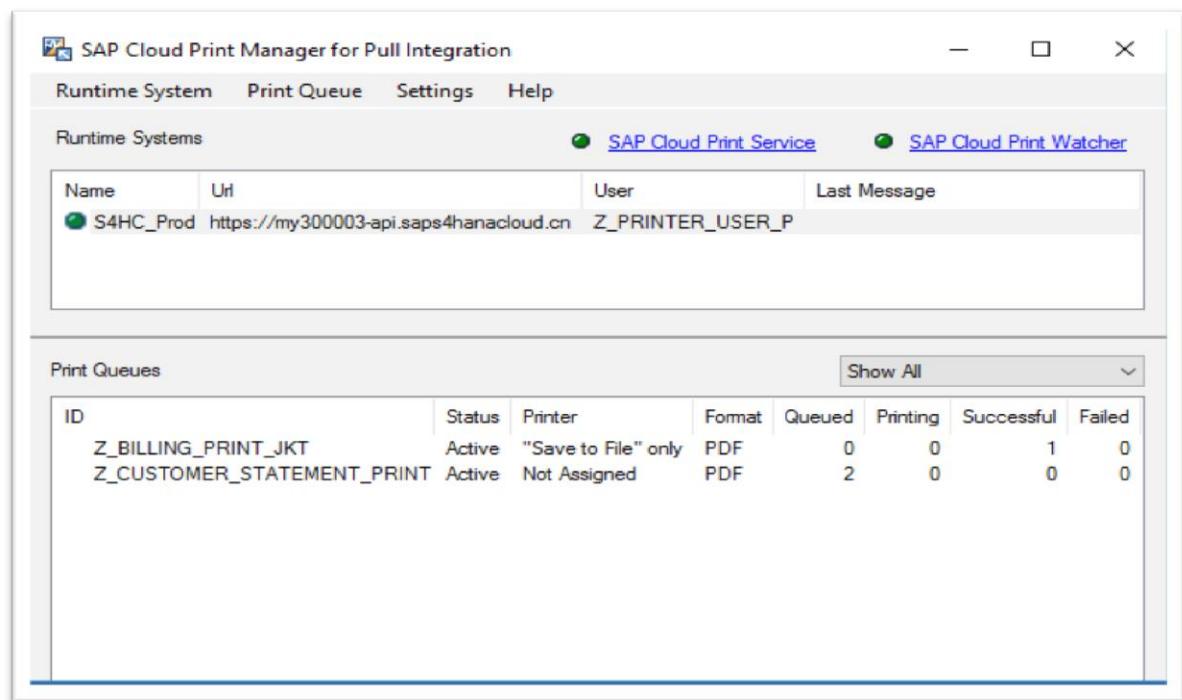
Figure 3.8. SAP Cloud Print Manager

The results of making prints and having been declared successful will be stored automatically on a public server which will later be accessible by all company employees who have an interest and have access to the folder.

Figure 3.9. Public Server for S4hana Billing

4. Conclusion.

The impact of migrating to a new system, and the use of SAP S4hana in the sales and distribution module still pose a problem. therefore, needs a comprehensive solution to the problem can be resolved. SAP S4hana cloud print manager can be applied to solve this problem. there are many stages that must be completed, including understanding the needs of the organization by conducting research on parts that have met the standard and those that have not. Network connection problems also require serious attention because the application to be used is a cloud print server system. As the final step, need media in the form of a virtual machine that is used to store the SAP cloud print manager application. Setting output parameters on the SAP system is necessary to ensure what will be printed will be sent to the SAP cloud management system. The most important things that must be considered are the two services that must always be active, namely the SAP Cloud print service and the SAP cloud print watcher

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