Implementing Bridge Between Ffems And Sfc

Dr. Kirti Wankhede[1],Mahesh Salke[2]

[1](Asst. Prof, It Dept., Kjsimsr, Mumbai University, India)
[2](Student, Mim, Kjsimsr, Mumbai University, India)

Abstract: *Field Force Expense Management System (FFEMS) and Sales Force Centricity (SFC) these are two different applications which are using by one of the largest pharmaceutical firm in India. Users of SFC system are District Manager, Regional Manager and Area Manager. These users can enter their monthly and yearly plan and daily expense details. Approved expense records provided to FFEMS system using interfaces in which each interface has different function. The transfer of data from SFC to FFEMS creates a lot of issues and challenges like functional dependency, no live data, security etc. This paper gives the overview of Field Force Expense Management System, Sales Force Centricity system and proposing a solution to overcome and solve the challenges and issues occurred during data transfer between the systems.*
Keywords: *Field force expense management system, FFEMS & SFC, Pharmaceutical industry, Sales force centricity, WCF*

I.   Introduction
The pharmaceutical industry in India ranks 3rd in the world in terms of volume and 14th in terms of value. According to Department of Pharmaceuticals, Ministry of Chemicals and Fertilizers, the total turnover of India's pharmaceuticals industry between the years 2015 - 2016 was US$25.00 billion.
FFEMS and SFC these are two different applications which are used by one of the largest pharmaceutical firm in India.

1.1 SFC (Sales Force Centricity)
Users of this system are District Manager, Regional Manager and Area Manager. They use it to enter their monthly and yearly plan, after which, user may enter their daily expense details in this system. These submitted expenses will be approved by their respective mangers. There are around 800-900 users in SFC system.
FFEM (Field Force Expense Management) System, describes the processing of payment amount of claimed expenses from MSR/DM/ASM. This system mainly performs following functions:
-   Processes claimed expense payment for MSR/DM/ASM.
-   Analyzes the expense data received by finance team / SKP Team
-   JV Processing.

1.2 Ffems
In this system, the payment processing of claimed expense by MSR/DM/ASM is done on monthly basics. Using this system, finance team receives hard copy of MSR/DM/ASM expenses with evidence. The team processes the payment and sends the analysis of document to SKP Team. The SKP analyzes the data and if suppose, any evidence of claim expense is missing then marks that entry for deduction/ addition. This deduction/ addition will be processed next month when MSR/DM/ASM claim expense. After finishing analysis, Finance team conducts JV processing and closes the current month and opens new month for next processing activity. Figure 1 shows the workflow of FFEMS.

1.3 Users In Ffems System
•   Admin: - Control access of all users. Create new users, update existing users and deactivate resigned users. Add and update all masters.
•   Finance: - Enter allowance details, view and download approved expense details.
•   Analysis: - Submit expense records which are approved and for which they have received hard copies of all expense bills.
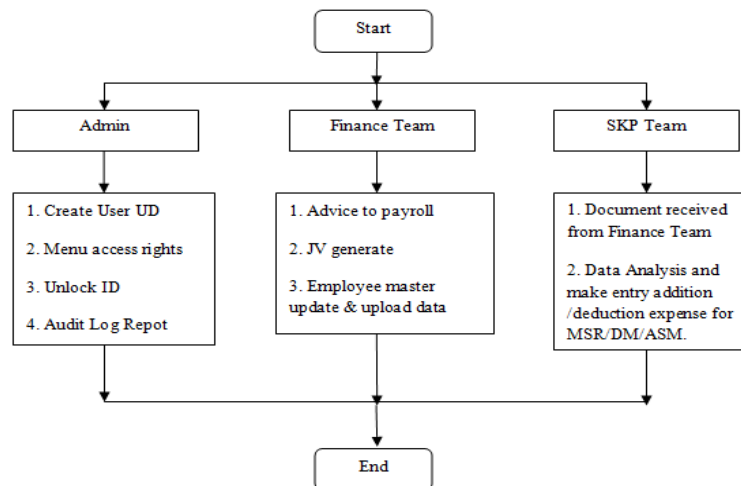
Figure 1: FFEMS work flow 1.0

1.4 Users in SFC system
- **Admin: -** Admin is responsible for adding and updating few masters.
- **HR:** - Responsible for control allowance master for different designations and different franchises.
- **DM:** - Enter their monthly tour plan, their daily expense and allowance details, and also enter their sales data.
- **ASM: -** ASM is responsible to approve DM's expense, ASM also enter their expense and allowance details.
- **RSM: -** Approve ASM and DM's expense. View all kinds of reports.
- **IT: -** Control access of various users. Create new users, update existing users and deactivate resigned users. All access management work is done by IT team.
- **Finance: -** View expense reports.

II. Working And Relation Of SFC And FFEMS

2.1 Working of SFC
　　　　　SFC system has different functionality, which cover various functional areas of the organization.
This system is used by pharmaceutical department, where DM has to visit different doctors and explain about different products. Each DM has to visit different doctor from different territory. Each one has specific target to achieve for each month. So, DM has to specify their tour plan and all their travelling and accommodation expense in SFC system. These tour plan and expenses are approved by their respective mangers. Manager has to approve or reject specific expense.
Then DM has to send hard copy of their expense report and all bills to finance team to claim these approved expense.

2.2 Working Of Ffems
　　　　　In this system, processing the payment of claimed expenses by MSR/DM/ASM on monthly basis is carried out. Using this system, finance team receives hard copies from MSR/DM/ASM with evidence. Finance team processes the payment and sends analysis document to SKP Team. The SKP analyzes the data and in case any evidence of claim expense is missing then marks that entry for deduction/ addition. This deduction/ addition will be processed in next month when the MSR/DM/ASM claims expense. After finishing the analysis, Finance team conducts JV processing and closes current month and opens new month for next processing activity.

2.3 Relation between SFC and FFEMS system
- As mentioned, FFEMS processes all approved expense details which are sent by DM as hard copies of expense reports and bills.
- Input of SFC system is expense details and expense approval from managers.
- Output of SFC is approved expense reports.
- Input of FFEMS system is approved expense records.
- Output of FFEMS is analyzed expense reports and expense head wise reports.
- Therefore, output of SFC system is input of FFEMS system.

III. Data flows from SFC to FFEMS

Approved data is transferred from SFC to FFEMS using interfaces. Each interface has different function. This interface is nothing but .exe files. There are two different .exe files present to transfer data from one system to another system. These two .exe files are scheduled on specific server.

3.1 Interface 1
- Interface is scheduled at 8.00 AM each day.
- This interface will read expense records which are approved on previous day from SFC database.
- Then it will create text file for each approved expense record. The text file contains summary and details of approved expenses.
- Summary means total expense amount for specific month. Whereas, details contain each expense type, travelling and accommodation amount for each day and it also includes other expenses.
- So this text file gets saved on specific path in one folder.

Figure 2: Interface 1

3.2 Interface 2
- Interface is scheduled at 8.10 AM each day.
- This interface reads each text file which is created and saved by 1st interface on specific path.
- Then it enters expense summary and expense details into FFMS database.
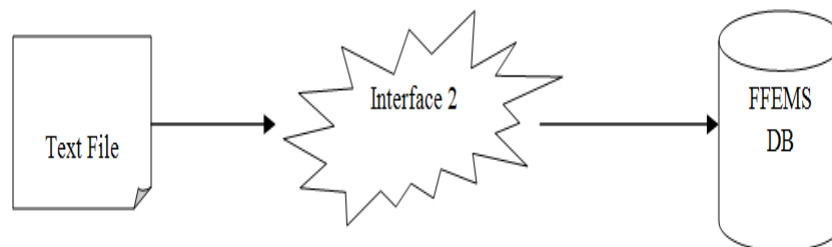- Then it moves text file which are successfully read and entered into FFEMS database.

Figure 3: Interface 2 3.0

3.3 Interface 1 and Interface 2 - current challenges and issues
- To transfer data from SFC to FFEMS, there is dependability on these two interfaces.
- These two interfaces are scheduled at specific time, so data processed is the data which was approved the previous day.
- Data which is approved after 8.00 a.m. will not be available in FFEMS on same day.
- Means no live data or latest data is available in FFEMS.
- These interfaces create text files and save them on specific path, so it consumes more space or memory day by day.
- Text files are easily readable and hence, not secure.
- Following are major challenges currently faced by company :
- Dependency
- Time consuming
- No live data
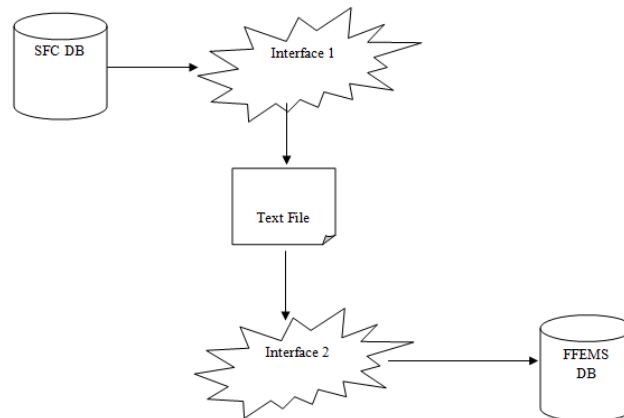- Memory consuming
- Less security

Figure 4: Interface 1 and interface 2 data flow.

IV. Proposed solution

In current situation, to transfer data from SFC to FFEMS, two .exe files are used as interfaces. Due to which company is facing above mentioned challenges.

To overcome these challenges, following solution can be used -

- Remove existing two interfaces which are running on daily basis.
- Use Windows Communication Foundation (WFC) services instead of these exe files.

Before getting to the advantages of WFC service let us understand WFC service.

4.1 Wcf Service

Windows Communication Foundation (WCF) is part of .NET 3.0 which is a Microsoft platform for building distributed and interoperable applications [1]. WCF supports multiple languages and multiple platforms.

4.1.1 Use Of Wcf Service

Consider the two situations where we have two clients for whom we need to implement a service. The first client is using Java Application to interact with our service. This client wants messages in XML format and the protocol to be HTTP to achieve interoperability. The second client uses .NET, this client wants messages in binary format and the protocol to be TCP to achieve better performance. It will not create any text file. This will not require any more space. A web service is then used for exchange messages in XML format using HTTP protocol for interoperability. A remote service is used to exchange messages in binary format using TCP protocol for performance.

4.2 Wcf Fundamentals

A WCF service is a program which acts as bridge or communicator between two systems, these two system can be developed in any language. Service class, Hosting environment and end point are the main components of WCF service. Service class: implements what the service needs. Hosting environment is an environment where WCF service get deployed

4.3 WCF Endpoints

A Service Endpoint has an Address, a Binding, and a Contract. The Endpoint's Address is a network address where the Endpoint resides. The Endpoint's Binding specifies how the WCF service communicates with the other application. Also it's specify which protocol it will use while communication to another system.
Endpoint's Contract defines which data or messages can be communicate through WCF service.One service can have multiple endpoints which communicate with different clients.
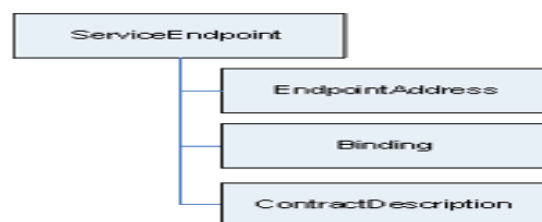

Figure 5: Service Components

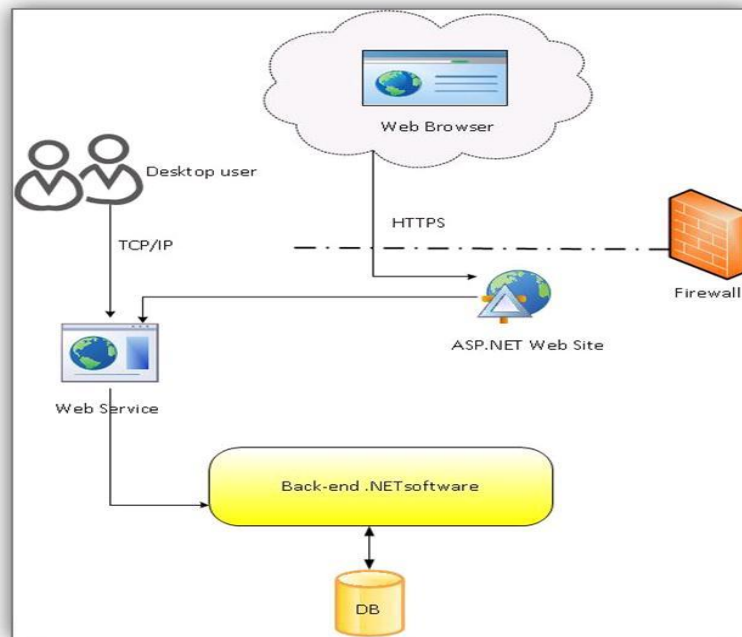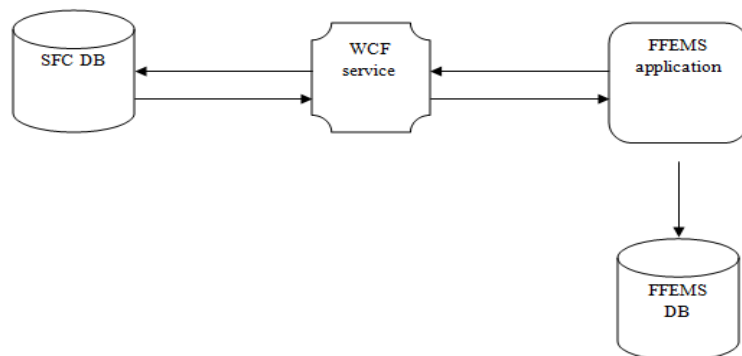The figure 6 explained how WCF service works.

Figure 6: WCF working

Figure 7: WCF with SFC and FFEMS

Figure number 7 shows working of SFC - WCF – FFEMS
Data flow:-
•   Request is sent to WFC service from FFEMS service to get data for any expense data of specific employee and for specific month.
•   WCF service retrieves data from SFC database.
•   WFC service will convert data to a specific format and then will send it to FFEMS application.
•   FFEMS will save response which is received from WFC into FFEMS database.

4.4 Analysis
•   WFC will not create any text file on server; it will directly transfer data from internet in XML format.
•   Save unnecessary consumption of memory by not creating text file.
•   Remove scheduling of .exe file which runs on daily basis, this will reduce overhead of server.
•   WCF will provide live data, when user requires any specific data.
•   WCF service will transfer data in encrypted format which is very secure.

IV. Conclusion
        WFC service has many advantages over existing two interfaces. WCF service can communicate with multiple applications simultaneously. So, in future we can use same WCF service to connect with other

applications for same propose. WCF service can communicate irrespective of any programming languages. So, implementing WFC service instead of current .exe interfaces will be much beneficial.

References

[1]. http://asp-net-csharp-vb.blogspot.com
[2]. http://www.codeproject.com
[3]. https://en.wikipedia.org/wiki/Pharmaceutical_ind
[4]. https://msdn.microsoft.com/en-us/library/aa480210.aspx