SAS Organisation and Processes

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Abstract

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This report gives an overview of the work done at SAS within the SERVIAM project. It provides a description of the SAS organisation, its software systems, evolution and maintenance processes, roles involved in the processes, and the future vision of implementing web services. This work will provide a basis for making suggestions for the changes to be made when implementing web services within SAS.

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1 SAS

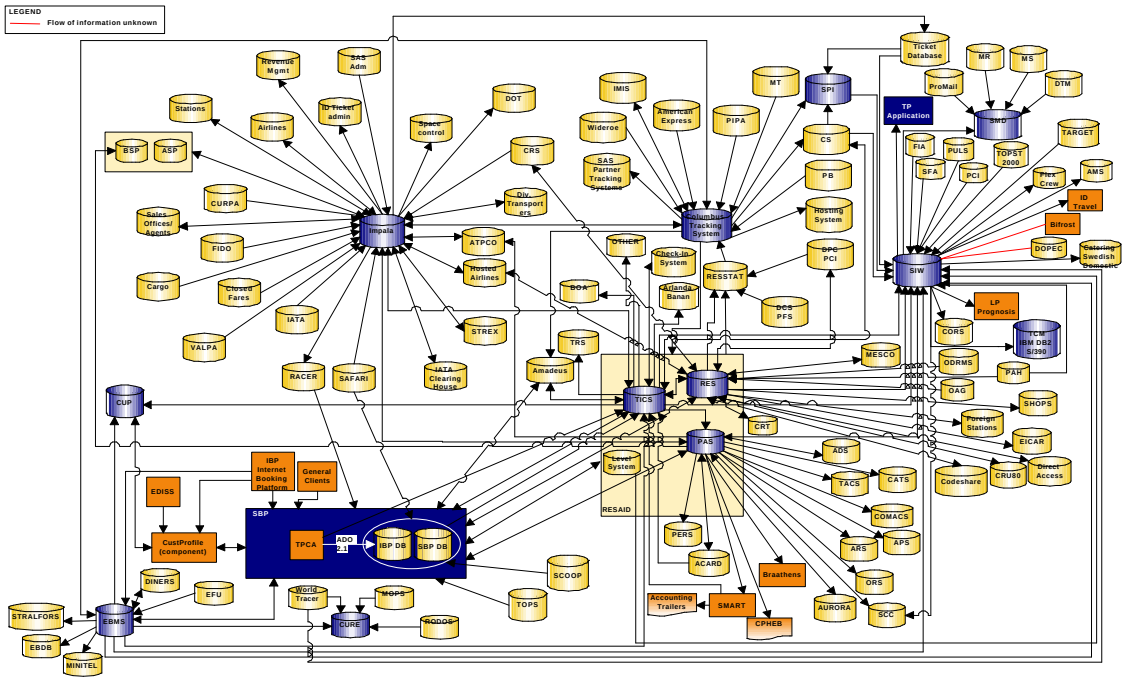
SAS, Scandinavian Airline Systems, is the Nordic region's largest airline and travel group and the fourth largest airline group in Europe, in terms of number of passengers[1] and operating revenue[2] [SAS03]. SAS is the founding member of the world's largest global airline alliance STAR ALLIANCE, including Spanair, Braathens, Woderoe's Flyvelskap, Blue1, Lufthansa, airBaltic, Estonian Air and LOT. Its main competitors are Air France, KLM, British Airways, and Finnair.

SAS focuses on both the business and leasure travels. Its key mission is to offer passenger air transportation. It also offers other services, such as for instance, a hotel service.

The company is situated in three countries: Sweden, Denmark and Norway. Its headquaters are in Stockholm (in Frösundavik) in Sweden. SAS employs about 3 500 in total [SAS 2003, p. 11]. Out of these, there are only about 150 software engineers[3]. This small number is due to the fact that most of the IT activities are outsourced to either separate organisations such as CSC (Computer Sciences Corporation)[4] or external consultants.

SAS manages software systems which mainly support their key mission. Right now, it has more than 100 software systems. These systems vary from reservation systems, inventories, systems tracking flight activities, customer profile databases, EuroBonus management system, look up passenger information systems to web-based systems used for information and reservations. A list of some of the SAS systems is presented in Appendix A. A short graphical representation of the SAS systems is presented in Figure 1.

[1] 20 million passengers in 2003
[2] MSEK 57754 in year 2003
[3] There are about 100 IT professionals in Stockholm and Copenhagen.
[4] former Scandinavian IT Group/SAS Data, SAS daughter companies.



The SAS systems do not exist in a vacuum. Some of them tightly co-operate with the systems managed by some external organisations who either support SAS in their key mission or provide additional service activities. Some of these organisations are Galileo, Amadeus. Amadeus, Lufthansa Systems, Nordea and travel agencies.

2 Organisation

SAS has outsourced the management of evolution and maintenance of all their software systems at the Support Line 3. They only manage all the activities at Support Line 1 and 2. The organisation conducting the third level support is CSC, mentioned in former section. SAS outsourced its third level support in February 2004.

HB stands for nothing. The department codes do not mean anything. The code first starts with the area code (STO, CPH and then the department identifier).

Other organisations: SAS, Amadeus, CSC, Gaileo. Gallileo is a company.

CPHHB is a Sales and Distribution Services Support function.

3 Roles

- U: Mats Fagerlund som är IT chef ansvarar för alla system - ansvarar för 60 olika system.

- M: PD- det är department leader. Pias chef är Mats. Pia ansvarar för 8-10 system. Hon ansvarar för en avdelning. I Sthlm finns det 2 st avdelningar. I Köpenhamn finns det få avdelningar.
- M: System Responsible, vem är han?
- U: Han (Mats) är chef för allt vad som har med IT att göra, även projektledaravdelningen. Medan hon (Lena Boström) är chef för systemförvaltning.

There are many roles at SAS involved in the evolution and maintenance. Within the SERVIAM project the roles of interest are System Owner, System Responsible, Department Leader, System Manager, Support Personnel, Super User, User, Production manager, and Change Control Board. These roles are shortly described below.

Roller på SAS: Förvaltare, projektledare, systemspecialister, arkitekter

System Owner

System Owner for taking major strategic and financial decisions and managing legal duties. The System Owner appoints the System Responsible and delegates the responsiblity for system administration and operation to the System Responsible.

System responsible

The role responsible for:

- marketing and representing the system/application
- long-term planning of development of the system/application
- participating in external working groups and internal investigations
- appointing a Department leader
- economical matters and legal duties on a high level
- making strategic decisions concerning the system administration

This role has the authority to:

- initiate reviews within the evolution and maintenance of the SAS systems
- lead and direct the use and management of the system/application
- negotiate with system customers.

Department Leader

The role being responsible for:

- the personnel
- the budget for the system, meaning budget planning and follow up
- appointing System Managers
- creating action plans according to the goals and strategies
- summon reports
- reporting on a status to the System Responsible
- managing system quality.

System Manager

System Manager is responsible for part of-, one-, or several systems. By part of the system, we mean one or several functionalities of the system. System Manager is responsible for:

- Administration of the application during operation
- Development of application

- Financial follow-up. The System Manager should not exceed the budget assigned to the application, s-he is responsible for.

Concerning the administration of the application during operation, the System Manager has the following responsiblity and authority:

- assuring that the system is stable and accessible
- assuring that the documentation is updated. This concerns both the technical system documentation and the user manuals,
- receiving system/application problem reports and take appropriate measures,
- informing the users that are to be affected by the changes to be made in the system
- making sure that the new functionality is developed according to the specificaiton
- participating in various meetings and work groups
- following the existing local and global rules and standards
- updating and signing Service Integration Agreements.
- Demanding information from Project Responsible on the changes in other systems that may affect the systems s-he is responsible for.

Concerning the application development, the System Manager has the following responsiblity and authority:

- administrating all the requests for changes to be made in the system,
- assuring that the enhanced system is secure and accessible according to the existing laws
- participating in the development projects
- conducting reviews within the development projects which directly or indirectly may affect the system, s-he is responsible for.
- conducting testing
- assuring the quality of the system
- approving the changes
- approving the new releases to be implemented.
- Planning and holding the CCB – meetings.

Concerning the financial part, the System Manager has the following responsiblity and authority:

- comparing the estimated costs with the actual costs
- comparing the estimated costs with the costs provided by the CSC in their montly invoices.
- Participating in the planning of the system administration budget.

Support Line 2

This role is conducted by the **Technical Support and Sales and System Support**. The role providing support on the Support Line Level 2. This role has the following responsibility:

- supporting Support Line 1, usually the Super Users in Scandinavia.
- Receiving and updating problem reports
- informing the System Manager about the problems in the system.
- Assisting the System Manager in testing and other evolution and maintenance activities

Super User: Super users are appointed users possessing good knowledge and experience within the systems they are responsible for. Super users are only appointed in Scandinavia. They have the responsibility for the daily operation of their systems. They:

- act as first level support
- inform their colleagues about new functionality and problems

- assist their colleagues in the daily operation of the system
- nominate a deputy
- educate their colleagues
- report problems to the Support Line 2.
- participate in information meetings
- participate in various courses

User: The role working with the system/application. They are responsible for:

- using the application according to the rules and standards
- ensuring that the data used in the application and connected systems are correct
- reporting on problems
- providing feedback to the one of the following roles: Super User, Technical Support or System Manager. The choice of the roles depends on the office location (Scandinavia or elsewhere).
- followin the information about the system as distributed by the System Manager.

Production Manager

Production Manager is responsible for

Change Control Board

The role consisting of several roles such as System Managers, Project Managers, representatives from CSC, and other various roles called if need arises. The CCB-meetings are arranged with the purpose of solving various problems and exchanging experience. The CCB is responsible for prioritising among the change requests to be attended to. CCB meetings are held once a month. Priorities are based on existing budget for changes and economical benefit for SAS.

There is no difference between the system manager and product manager. Before, when you were responsible for the system you were called system manager. We very seldom use the title product manager.

Anne Peter and Hilda are system managers for Resaid and Amadeus and just for one functional area. There are many other functionalities for which others are responsible.

Anne's department is not SAS Denmark, but SAS, and they are placed under an organisation called common functionalities. They have the common responsibility for the mainframe system.

4 Processes

Within hte SERVIAM project, we studied 4?? different processes. They are:

- Problem Management [Kajk1]
- Change Management [Kajk2]
- Emergency Handling [Kajk3]
- Release management [Kajk4]
- Production Management ????
- Request Management ????

These processes are described in the SERVIAM reports [Kajk2-5].

5 Tools

The evolution and maintenance processes at SAS are supported by a tool called SPAR. SPAR is an abbreviation of **S**AS **Par**adigm. It was developed by Computer Associate in co-operation with SAS and CSC. The tool supports the management of the six processes mentioned in Section "Processes". Hence, the study of the tool has immensly aided us in understanding the SAS processes. The tool is described in the SAS document [SAS2].

The tool is used by SAS and CSC, any other organisation?. SAS exchanges problem and change reports with its vendors, partners and providers who are they exactly? Please list them.

Spar is a client-server tool. The server is located in Copenhagen and the client software is installed on individual work stations located anywhere in the world. The client software will be automatically updated with the latest version from the server, when a user logs on to the system.

6 Reports

The SPAR tool manages all kinds of reports. The main ones are Problem Tracking Report (PTR) and Change Request (CR). The PTR records all kinds of problems encountered in the existing and documented functionality. The CR, on the other hand, is the request for new functionality. This new functionality either enhances the system or resolves a problem not documented as current functionality.

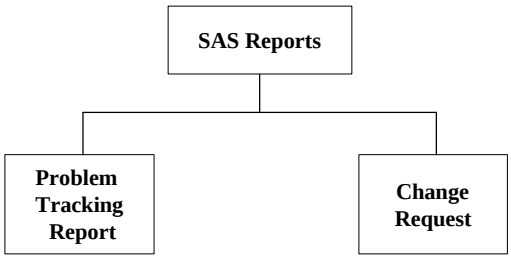


Figure ??. Types of reports at SAS.

The difference between the PTR and CR lies in the contents, and in the payment. The contents is described in [Kajk?? And Kajk??]. Regarding the payment, all problem reports are paid with a with a fixed amount of money agreed upon in Service Integration Agreements [Kajk6]. All change requests are paid individually per amount of estimated effort.

7 Vision at SAS

We have decided to use web services to implement our service oriented architecture, which we use to implement operational data stores, generic services etc. This is a "vision"/strategic plan.

We do not yet have a clear picture of what changes that have to be implemented concerning org, roles and processes.

/Björn

8 References

[Kajk1]

[SAS03] SAS Group, The SAS Group's Annual Report 2003 & Sustainability Report, http://www.euroland.com/arinhtml/?companyCode=s-sas&artype;=ar&aryear;=2003&replang;=eng_, studied on September 1, 2004.

[SAS1] Ediss Sales – Guidelines, SAS Internal Docuumentation, 2004.

[SAS2] SAS Document, SPAR Manual, SAS 2004.

9 Appendix Software systems at SAS

In this appendix, we present a list of some of the Software Systems managed or utilised by SAS. The owner of these systems is not always SAS. This list has been elicited from [SAS1].

- **Amadeus**: A computer reservation system owned by the company Amadeus. It is the primary reservation system for SAS sales offices.
- **Columbus**: A system used for tracking flight activities
- **CUP** (Customer Profiles): The database recording customer profile information such as personal details and travel preferences.
- **EBMS (EuroBonus Management Systems):** A system managing information about the EuroBonus members. It assigns poinnts to the collected confirmed activities.
- **FUIR (Follow Up on Individual Results):** A system tracking and registering the sales performed by SAS Sales Agents.
- **IMPALA (Integrated Method for Passenger Accounting and Local Administration):** A sales based revenue accounting system.
- **LUPIN (Look Up Passenger Information):** A system utilised for tracing flown segements.
- **RESAID (Reservation Automated Information Display):** A reservation and inventory system utilised for recording information on only SAS flights.
- **TICS (Ticketing Instruction Construction System):** A system issuing tickets.

10 Annat

Anne is both System Manager and Product Manager. She is one of the three system managers for Resaid. She is also a system manager for Amadeus and other systems. Even if Amadeus is owned by Amadeus, SAS personnel takes on the management of all problems reported in some parts of Amadeus functionality.

Now at SAS most of the system managers are responsible for some functionality which may be distributed across several systems. Anne is responsible for teletype functionality which is a type of communication among several systems.

If you are in Amadeus and you are making a reservation and once that transaction is done and you are making an intertransaction so you actually end the reservation, a message is then sent to those airlines which have been booked and this message is called a teletype message.

Another responsibility area is reservation itself, passanger name record . Peter is responsible for security and maintenance.

Many years ago, SAS had system managers for Resaid, and one for Amadeus, but one always had to coordinate within the same functional area. But now, it has been split. And now one

system manager is responsible for one or several functional areas no matter where it is implemented.

11 Appendix