Reference Project

NAV Saves License Cost by Replacing CA Spool with _beta doc|z for Ad Hoc IP Printing from CICS/JES2s

NAV has for several years relied on Beta Systems for output and log management for IBM z/OS. While Beta Systems has been delivering the batch printing for NAV, anything printed on an ad hoc basis from z/OS was at NAV up until now distributed through CA Spool.
The job of CA Spool was to manage print transfer from the CICS-based application via TCP/IP communication to print servers for printing on local network printers. A close cooperation between NAV and Beta Systems led to new features in _beta doc|z, which enabled the successful replacement of CA Spool. The result for NAV brought continued successful operations with no impact on end users and no changes needed in the CICS application, while reaching substantial savings in license costs.

The Previous Setup and Challenge

The CICS application prints to the JES2 Spool. In turn JES2 then previously sent the print to CAsSpool, which distributed the print via TCP/IP to the local network printers. Additionally, NAV is using a software by PaperCut for secure print. This solution enables a scenario where the user authenticates with a physical key card at a printer of choice for the print to be executed at that printer. For this to work, the print job must be sent to the correct PaperCut server and also the CICS user ID needs to be passed on to PaperCut. A special challenge was the sheer amount of print definitions. Around 2,700 printers had been defined in CA Spool. These were multiplied by output classes (including some alternate definitions), governing the design of the print – i.e. formatting of the documents, paper orientation, fonts, logos to be used etc. This kind of setup resulted in around 34,000 printer definitions.

About NAV

The Norwegian Labour and Welfare Administration (NAV) manages one third of the national budget of Norway through schemes such as unemployment benefit, work assessment allowance, sickness benefit, pensions, child benefit and cash-for-care benefit.

NAV employs around 19,000 people. Of these around 14,000 are employed by the central government, the Norwegian Labour and Welfare Services and around 5,000 are employed by the local authorities. In addition to the local NAV offices, there are more than one hundred special units.

More information about NAV is available at www.nav.no.

Solution requirements

NAV now uses _beta doc|z on IBM z/OS both for printing and archiving around 500,000 batch lists per year as well as printing via TCP/IP on ad hoc basis. The new TCP/IP print solution includes some ASCII print, but mostly it is line-based with graphics being PCL-based.

"The migration from CA Spool to beta doc/z was very successful and has led to a significant reduction in licence cost. I would also like to mention a smooth and controlled migration process, with no negative impact for users and the production team".

Eivind Ruud,
Head of z/OS office at NAV

The architectural prerequisites were provided with the new Symphony product generation from Beta Systems, which features greatly improved IP print functionality as well as utilization of the IBM SYSOUT API (SAPI). The SAPI reader gives better performance and more importantly: _beta doc|z can now manage multiple definitions per output class, i.e. read out parameters such as jobnames and dynamically control the print.
By this technology the print definitions challenge could be tackled. The results of an analysis performed by Beta Systems' experts, showed that the 34,000 flat printer definitions could be reduced by logic to only 7 main mappings. Also, the 2,700 physical printers are now mapped down to less than 200 print servers. This could be done by dynamically adding the queue name, which determines the printer connected to the print server. Going forward the amount of print servers can be further reduced by optimizing the setup. Also instead of pre-defining user ID´s as in CA Spool, we now dynamically pick up the CICS user ID and pass it on to PaperCut.

Excerpt of some of NAV's Technical Requirements Fulfilled by _beta doc|z

- ✓ Line data (EBCDIC) with ASA/Machine Carriage Control Characters
- ✓ Electronic formulas (overlays) in the print data stream
- ✓ Using information in OUTPUT and DD SYSOUT JCL for determining printing destination and format
- ✓ Use of formatting commands linked to output classes to specify single-sided/duplex printing, paper orientation (portrait/landscape), fonts, line spacing, selection of input tray etc.
- ✓ Functionality to gather statistics and usage at printer level
- ✓ Functionality to overwrite spool file attributes
- ✓ Customizing mainframe printing to interface with PaperCut
- ✓ Solid security concept

During the project _beta doc|z was expanded with new standard functionality. The printer definitions are now part of the _beta doc|z database. ISPF administration interfaces with help panels were also added. This makes it very easy to add/remove/change printers. NAV can also research printer setups to see what PCL members, logos and so on will be used, even before going live with a printer. Since the definitions are in the database, it also means that all data can be backed up for safety. For compliant operation all actions are logged in SMF records. Definitions are governed by RACF permissions and SSL/TLS encryption is used for securing communications.

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