

Doing things normally not possible from a CA Gen server program using web pages.

Clifford Wills, University of South Africa

Session 4, Track 2,
12 Oct 2009, 13:30-14:15



Programme

- Brief introduction of the speaker
- Introduce the University of South Africa (UNISA)
- Describe the history of CA Gen in UNISA and how it is used
- Describe the CA Gen environment at UNISA
- Describe the challenges faced and why CA Gen alone would not work
- Present the 'very simple idea' with some technical details
- Describe how this idea was used to solve the challenges
- Give advantages and disadvantages of this approach
- Conclusion
- Questions, Answers and more technical details if required



Brief introduction of the speaker

- Deputy-Director at the UNISA
- Head up the Study Material, Assessment and Workflow systems development section in the ICT department
- Started at UNISA in 1990 as a programmer
- Promoted to senior programmer in 1993
- Became Project Manager/Deputy-Director in 1999
- B.Com degree in Computer Science & Economics and a B.Com(Hons) in Computer Science
- Started with Composer 3 in 1996 and now on CA:Gen 7.5



The University of South Africa (UNISA)



The University of South Africa (UNISA)

- University of South Africa is a Open & Distance Learning Institution
- Currently have 280 000+ students registered
- 4000+ staff members to attend to academic and administrative needs
- Offer 1000+ Programmes/Qualifications
- Main student body is in South Africa, but have students world wide



CA:Gen in UNISA

- UNISA started with Composer 3 in 1996 with a conversion project. Mainframe, Cobol, DMS II to Windows Clients, Unix Servers and an Oracle database
- Upgraded Gen every two to three years
- Currently using CA:Gen 7.5
- Our Student System is written in Gen. Some 900+ client/server functions and 600+ batch programs



The two challenges for CA:Gen

Here are two challenges that were solved using web pages. The use of a very simple idea allowed us to extend the functionality of CA Gen server programs to do almost anything

- 1) Not been able to update file names/directories on a file server from a Gen server program
- 2) Not been able to read another database, not part of the data model, from a Gen server program



File names on a file server

- Study material in hardcopy and .pdf on web
- One set of meta data for both
- Changes to meta data must also take place on the .pdf file names stored on the web server
- The file manager written in Java
- myUnisa written in Java
- The study material system in CA:Gen running on a Unix box



File names on a file server

- Files are in a web server while Gen server on Unix
- No simple way to update the file names
- Could use external written in C
- Very few C resources thus difficult to maintain
- The resources for the .pdf study material only use Java
- Keeping a C external and the Java system in sync difficult



Reading Database not in Data Model

- Matriculation board provide data to UNISA
- This data is in a VB application with SQL Server database
- UNISA wanted to access this data from a Gen program directly
- Large amount of data just for inquiry
- We use Oracle database on Student System
- Oracle table space expensive
- Big changes to the data model



Very Simple Idea

- Write a web page to do the work
- For the files, the Java resources could easily write a .jsp
- For the VB application, it was easy to write an .asp to read the data
- The web pages are part of each system, not Gen
- The Gen resources do not need to have .jsp or .asp skills

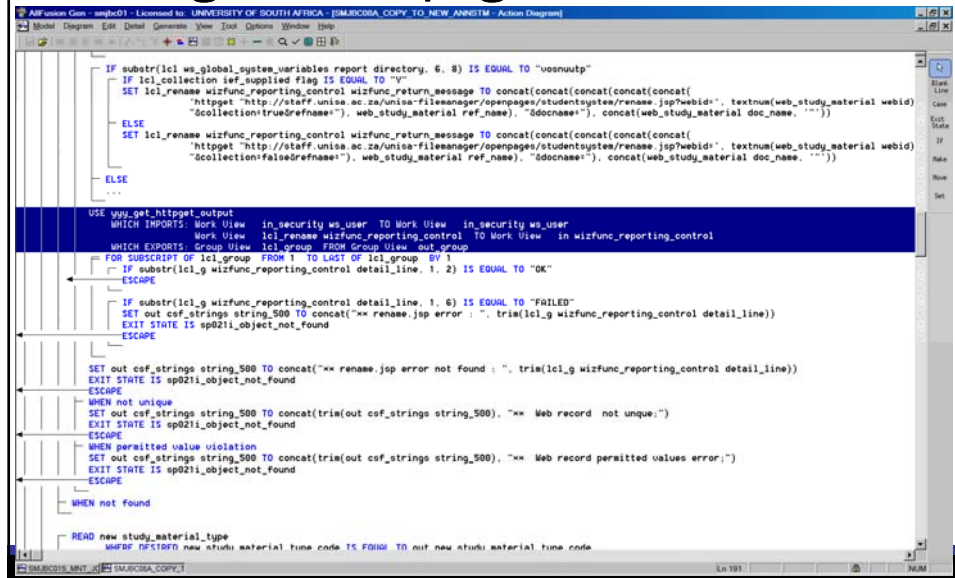


How did we implement this idea ?

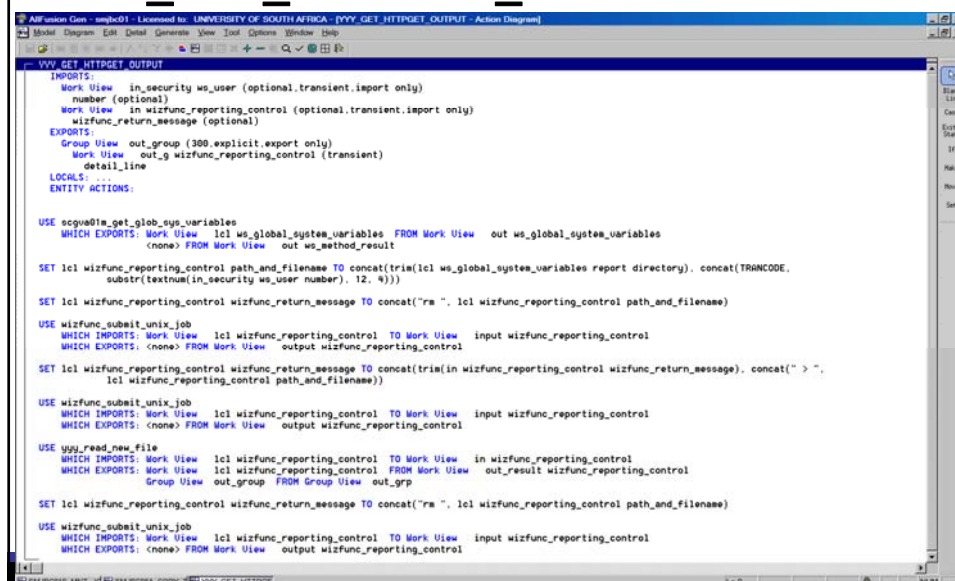
- A perl script was developed called 'httpget'
- It takes a URL and returns the results of the web page
- It is run from the command line
- A common Gen action diagram and standard C externals are used to call the perl script
- All the Gen resource must do is create a string with the URL and correct parameters



Calling the web page from Gen



YYY_GET_HTTPGET_OUTPUT



File names on a file server solution

- The Java resources that maintain the .pdf study material system wrote a .jsp (rename.jsp)
- The java team understand and maintain the web page
- The Gen team just use the web page
- The rename.jsp will change the directory/file names according to the parameters sent



Reading Database not in Data Model

- One of our VB resources wrote a small .asp to retrieve the data given parameters
- The VB application remains standard as supplied by the Matriculation board
- If there are any changes to the database, we simply change the .asp



Reading Database web page call

```

AIFusion Gen - srms01 - Licensed to: UNIVERSITY OF SOUTH AFRICA - [SRMSADA.GET_SCRS_MATRIC - Action Diagram]
Model Diagram Edit Detail Generate View Tools Options Window Help

IF substr(lcl_ws_global_system_variables report_directory, 6, 8) IS EQUAL TO "uosnuftp"
SET lcl_wizfunc_reporting_control wizfunc_return_message TO concat('http://www2.unisa.ac.za/screes/asp/genoql.asp?ExamNumbers=',
concat(trim(in ws_student_application matric_exam_nr), concat('ExamYear=', lcl_input csf_strings string_4)))
SET lcl_wizfunc_reporting_control wizfunc_return_message TO concat(trim(lcl_wizfunc_reporting_control wizfunc_return_message),
concat(trim(concat('ExamProu=', lcl_input csf_strings string_1)), '001'))
SET lcl_id wizfunc_reporting_control wizfunc_return_message TO concat('httpget http://www2.unisa.ac.za/screes/asp/genoql.asp?IDNumbers=',
concat(trim(in ws_student identity_nr), ''))
SET lcl_id wizfunc_reporting_control wizfunc_return_message TO concat(trim(lcl_id wizfunc_reporting_control wizfunc_return_message), concat(trim("0012"
ELSE
SET lcl_wizfunc_reporting_control wizfunc_return_message TO concat('httpget http://www2.unisa.ac.za/screes/asp/genoql.asp?ExamNumbers=',
concat(trim(in ws_student_application matric_exam_nr), concat('ExamYear=', lcl_input csf_strings string_4)))
SET lcl_wizfunc_reporting_control wizfunc_return_message TO concat(trim(lcl_wizfunc_reporting_control wizfunc_return_message),
concat(trim(concat('ExamProu=', lcl_input csf_strings string_1)), '001'))
SET lcl_id wizfunc_reporting_control wizfunc_return_message TO concat('httpget http://www2.unisa.ac.za/screes/asp/genoql.asp?IDNumbers=',
concat(trim(in ws_student identity_nr), ''))
SET lcl_id wizfunc_reporting_control wizfunc_return_message TO concat(trim(lcl_id wizfunc_reporting_control wizfunc_return_message), concat(trim("0012"
IF in ws_student_application matric_exam_nr IS NOT EQUAL TO SPACES
AND lcl_input csf_strings string_4 IS NOT EQUAL TO SPACES
AND lcl_input csf_strings string_1 IS NOT EQUAL TO SPACES
NOTE ** ok
ELSE
NOTE ** ok
NOTE ** ok
SET lcl_wizfunc_reporting_control wizfunc_return_message TO lcl_id wizfunc_reporting_control wizfunc_return_message
ELSE
SET out ws_method_result return_code TO "ER"
SET out csf_strings string_500 TO "no input to test"
ESCAPE
NOTE *****
Read for SCRES record (camp)
*****
USE yyy_get_httpget_output
WHICH IMPORTS: Work View in ws_user TO Work View in security ws_user
Work View lcl_wizfunc_reporting_control TO Work View in wizfunc_reporting_control
WHICH EXPORTS: Group View lcl_group FROM Group View out_group
FOR SUBSCRIPT OF lcl_group FROM 1 TO LAST OF lcl_group BY 1
NOTE ** error name from web examn input string incorrect or none web error

```

Reading Database (Example Data)

```

Untitled - Notepad
File Edit Format View Help

Exyear=2008
Prou=1
ExNo=1402775
Centre=133316241
IDNo=9007020043681
ExDate=200811
FT=True
DOB=19900702
SName=BREYTENBACHT
FName1=JEAN
FName2=
FName3=
EType=
RType=
Agg=
AggCond=False
Spec=
MeritDistinc=
CampID=15949094
Homelang=A
IDType=SA
Immigrant=False
Gender=F
Race=W
HE_admission=B
Endorsedspecialneeds=False
Specialcondition=N
Mathdisorder=False
Achieved_NSC=True
NSCformat=True

```

```

Untitled - Notepad
File Edit Format View Help

prou=1
code=13301024
rating=6
pct=75
prou=1
code=13311114
rating=6
pct=74
prou=1
code=16341024
rating=7
pct=85
prou=1
code=19321024
rating=7
pct=91
prou=1
code=19351024
rating=7
pct=84
prou=1
code=19351084
rating=6
pct=77
prou=1
code=20351024
rating=6
pct=71

```

DGE EMEA 2009
October 11-13, 2009
Amsterdam

Advantages of this approach

- Main advantage, if you can write a web page to do it, Gen can do it
- The web page is maintained by the system owners
- The Gen developers do not need to know the details of the other system
- The same concept can be used in non Gen applications



Disadvantages of this approach

- In read only type solutions, the only problem is if the web page is down, your Gen application will not work
- The is the same for all web services
- In update type solutions, the big disadvantage is the Gen developer must manage the roll back



Conclusion

- Basically this uses to concepts of a web service
- It expands Gen functionality without having to re-skill Gen developers
- I hope this presentation has prompted you to think more creatively when designing Gen solutions



Questions & Answers

- Any questions ?
- Please feel free to email questions to me
- Email: willsr@unisa.ac.za
- Thank you for your attendance

