



CA-ACF2 / CA-TopSecret Migration to RACF

The Technicalities

Ted W. Anderson
IBM/SMPO
TedAnd@US.IBM.COM

SMPO/TMT

Agenda and Trademarks



■ Agenda

- Introduction
- Terms
- The Technical Challenges
- End Objectives of Migration
- Execution

■ Trademarks

- Trademarks of International Business Machines
www.ibm.com/legal/copytrade.shtml
- RACF, CICS, MVS, Tivoli, OS/390, OS/390 Security Server
- Trademarks of Computer Associates International Inc., CA-Top Secret, CA-TSS, CA-ACF2

SMPO

Software Migration Project Office



Introduction

■ IBM Software Migration Project Office

- Opened for business in 1993
- Customers wanted migration expertise that was product specific
- Current Migration Teams
 - Tivoli Migration Team/Systems Management products
 - Database Migration Team/DB2 Migrations

■ SMPO Tivoli Migration Team

- Security
- Automation (SA/390)
- Storage Management (RMM, DFHSM)
- Operations Management (OPC)
- Performance Management (PR/MVS)

SMPO

Software Migration Project Office



Introduction

■ SMPO Security Team(Americas)

- Manager - Marilyn Thornton
 - MarilynT@US.IBM.COM
- Sales - Lori Kikuchi
 - Kikuchi@US.IBM.COM (919) 848-9655
- Sales - Susan Aronow
 - SAronow@us.ibm.com (904) 928-4748
- 4 Technical Migration Specialists

■ Our Model is based on license growth rather than services revenue

- The customer's migration team has more knowledge of RACF at the end of the migration.
- 130+ successful RACF migrations

SMPO

Software Migration Project Office

The Challenges/Introduction

Tivoli

- **When Implemented correctly all 3 products provide OS/390 security**
 - Must be monitoring
 - Must be a well designed system.
- **All 3 products have basic philosophical design differences.**
- **Getting the migration team familiar with a new product**
 - The lightbulb has to go on.
 - CA-TSS, you don't look at things by USER rather by Resource
 - CA-ACF2, No more UID strings, rather there are Groups

SMPO

Software Migration Project Office

Terms/Definitions

Tivoli

- **Migration vs. Implementation**
 - 99% of our engagements are migrations
- **Migration creates an equivalent security system**
- **Equivalent Security**
 - If USERA can update SYS1.PARMLIB today, USERA can update SYS1.PARMLIB tomorrow
 - Manage the migration toward security policy rather than duplication of the same rules
- **Migrations are semi-Opaque to the USERS**
 - An On-line user probably sees no difference
 - The Security Administrator sees a **BIG** difference

SMPO

Software Migration Project Office



The Challenges

Tivoli

RACF	CA-TSS
Resource Oriented	USER Oriented
Access Lists using Groups and USERids	Access Lists using Profiles and Resources
No MODs or Hooks uses standard SAF.	Replace SAF modules and uses Dynamic hooks

SMPO

Software Migration Project Office

The Challenges

Tivoli

RACF	CA-ACF2
Resource Oriented	Resource Oriented
Access Lists using Groups and USERids	Access Lists use Rules and NextKeys with UIDs
No MODs or Hooks uses standard SAF.	Replace SAF modules and uses Dynamic hooks, Especially JES2 and CICS

SMPO

Software Migration Project Office



Execution - Assumptions

Tivoli

- **The Assessment (Assumptions)**
 - The Intended Target is a RACF 'style' system with 0 exits and 0 mods due to the RACF system
 - The use of a Migration Tool to do the grunt work
 - Experienced personnel
 - Knowledge of RACF
 - High priority project
 - A system to run the tool, and to test RACF

SMPO
Software Migration Project Office



Execution - Assessment

Tivoli

- **The Assessment**
 - Must analyze how the security product is USED
 - Which Systems have explicit interfaces
 - Which Systems have implied dependencies
 - Generates the list of 'GotChas'
 - Outdated Software (e.g. CICS V2.1.2)
 - Interfaces to other systems - expecting specific record formats etc.
 - Screen Scrapers or other Message Dependent interfaces
 - Non SAF type interfaces
 - Needs for exact technique vs. equivalent security
 - How are contingency situations handled? Nightly batch as well as D.R.
 - Sets the Stage for the Big Picture Estimate of what is needed resources and time.
 - Gives enough of a cost estimate to determine whether to proceed.

SMPO
Software Migration Project Office



Execution - The Plan

Tivoli

- **One Week of Intensive Meetings**
- **Assign Roles**
 - Project Leader
 - Database Conversion Programmer
 - Security Analyst
 - MVS System Programmer
 - On-line System Programmer
 - Application Project Leaders
 - Audit representative
- **Assign Tasks**
 - Does one person end up with too much to do (speak now)
- **Draw up a Timeline**

SMPO
Software Migration Project Office

ID	June	July	August	September	October
1	Project Team Education				
2	Project Planning				
3		Development			
4			Unit Testing		
5				Integration Testing	
6					Production Cutover

SMPO
Software Migration Project Office

Execution

Tivoli

- **Project Team Education**
 - Core Team must know both products
 - Preferably prior to the planning session to allow good decisions
- **Development**
 - 'Develop' solutions to all exits
 - Configure tool to create proper database
 - Perhaps change 'old' system
 - Perhaps change tool
 - Perhaps make changes on RACF system
- **Unit Testing**
 - Put all CICS together, all JES2 together
 - Makes a huge difference if applications can be tested at this phase

SMPO
Software Migration Project Office

Execution

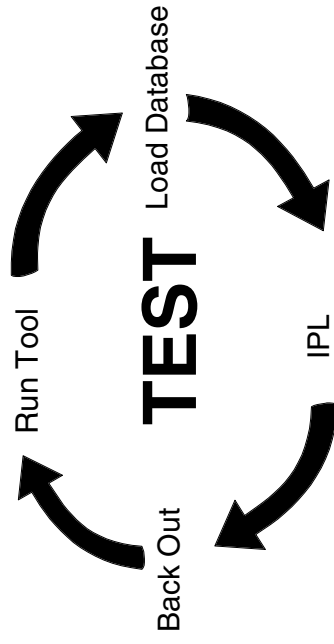
Tivoli

- **Integration Testing**
 - Put on the 'Applications' test LPAR
 - If work is done in Development - this does not take long
- **Can be iterative - back to Development with pieces than forward again**
- **Production Cutover - usually planned over 2 or 3 test weekends**

SMPO
Software Migration Project Office

Execution - The Plan

Tivoli



SMPO
Software Migration Project Office

Execution - First IPL

Tivoli

- **Remove customized SAF modules from LPA**
 - If kept in a specific LPALST or MLPA etc., remove it
 - Otherwise look for ICH modules in CA-TSS or CA-ACF2 libraries remove them.
- **Check CAS9, for start-up but also for CICS etc. interfaces**
- **Check for any operating system related calls, CA-ACF2 JES2 interface, any SMF exits which may make proprietary calls**
- **NOTE - This is not a de-Install, simply a 'Quick' IPL scenario**

SMPO
Software Migration Project Office

Execution - First IPL

Tivoli

- Follow normal RACF set-up (specifics in OS/390 Security Server (RACF) Systems Programming Guide SC28-1913) and in SYS1.SAMPLIB(RACINST)
 - Run IRRMIN00 to init, for the load only set the database size 3x your current database, guarantees no B37 during the load
 - Set-up SCHEDxx, IKJTSOxx, IEFSSNxx, set-up IRRDPTAB proc, ICHRDSNT, IFAPDxx and the RACF proc itself
- Prepare a ICHRIN03 - ONLY for the LOAD!!!
- OS/390 2.6 and Later, setup IBMUSER, SYS1 and TTY with OMVS segments. - Only for the Load!!!

SMPO

Software Migration Project Office

Execution - The First IPL

Tivoli

```
COUNT DC AL2 ( ( ENDRIN03 -COUNT -2 ) / 32 ) + 32768 )
DC CL8 '*'
DC CL8 'IBMUSER '
DC CL8 'SYS1 '
DC XL1 '40'
DC XL7 '00'

ENDRIN03 EQU *
END
```

SMPO

Software Migration Project Office

Execution - First IPL

Tivoli

- If you plan to sign-on to submit the load jobs - set up a UADS entry for IBMUSER - documented in the TSO/E System Programming Command Reference SC28-1972
 - A (IBMUSER password tsoproc) MAX(4096) SIZE(4096) UNIT(SYSALLDA) JCL RECOVERY
- Build CDT and Router table entries for installation defined classes (Samples for both are in SYS1.SAMPLIB(RACTABLE))
- For performance update COVLFxx and IEAFIXxx samples in SYS1.SAMPLIB(RACPARM)
- Also update the GAT

SMPO

Software Migration Project Office

Execution - The First IPL

Tivoli

```
SETROPTS EGN GRPLIST GENCMD(*) GENERIC(*) -
NOADSP
SETROPTS PASSWORD(HISTORY(04) REVOKE( 5) -
WARNING( 5) RULE1(LENGTH( 5:8) ) )
```

SMPO

Software Migration Project Office

Execution - The First IPL

Tivoli

```
SETROPTS GLOBAL(DATASET)
RDEFINE GLOBAL DATASET
RALTER GLOBAL DATASET -
  ADDMEM('SYS1.BRODCAST'/UPDATE')
ADDS 'SYS1.BRODCAST' UACC(UPDATE)
RALTER GLOBAL DATASET -
  ADDMEM('CATALOG.MASTER.**'/READ)
ADDS 'CATALOG.MASTER.**' UACC(READ)
PERMIT 'CATALOG.MASTER.**' ID(SYSGROUP) -
  ACCESS(CONTROL)
SETROPTS GLOBAL(DATASET) REFRESH
```

SMPO

Software Migration Project Office

Execution - First IPL

Tivoli

- To speed the load
 - Vary off alternate RACF Database
 - Dummy out the BRODCAST dataset in your load JCL.
- Additional features handled
 - DB2 interface
 - SMS
 - OMVS
 - CICS
 - IMS
 - TSO

SMPO

Software Migration Project Office

Execution - Development

Tivoli

- CA-TSS
 - Review conflict reports
 - Wildcards for Symbolics in HLOs
 - Review any non-SAF compliant interfaces
 - Check for any ISV changes
 - Make maps of Facilities to resources
- Requires PL/I run time libraries.. Usually no problem with OS/390 since LE now has all language run time



SMPO

Software Migration Project Office

The Challenges/USER Centric Conflicts

Tivoli

SYS1.PARMLIB	USER01	READ
SYS1.PARM	USER01	READ
SYS1.PARM+++		
SYS1.PARMLI		
SYS1.PARM*.*	USER01	READ
SYS1.PARMP%*.*		UACC(NONE)
SYS1.PARMLI*.*		UACC(NONE)

SMPO

Software Migration Project Office

The Challenges/Merge Conflicts

Tivoli

SYS1.SLACKERS.LOADLIB	USER01	READ
SYS1.SLACKER	USER01	NONE
SYS1.SLACKERS	USER01	UPDATE
SYS1.SLACKERS.	USER01	READ
SYS1.SLACKER**	USER01	NONE
SYS1.SLACKERS**	USER01	???

SMPO

Software Migration Project Office

The Challenges/Generic HLQs

Tivoli

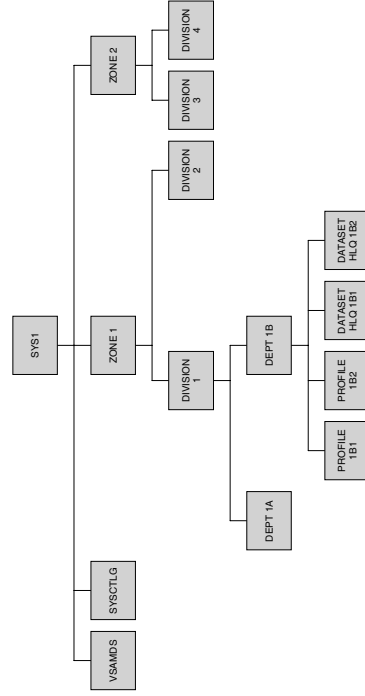
++++.APPL01.
????.APPL01.**

SMPO

Software Migration Project Office

The Challenges

Tivoli

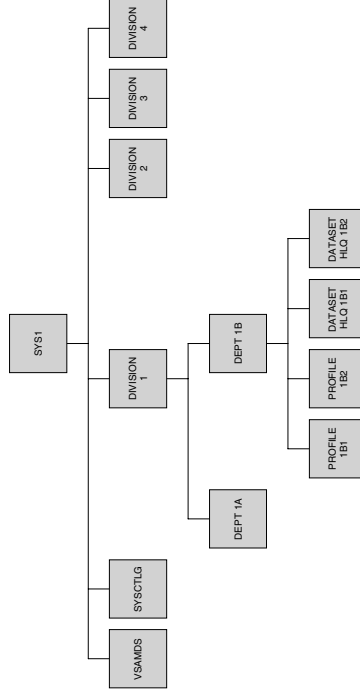


SMPO

Software Migration Project Office

The Challenges

Tivoli



SMPO

Software Migration Project Office

Execution - CA-ACF2

Tivoli

CA-ACF2

- ▀ Viable Group Tree Structure
- ▀ UIDs on rules with no LIDs
- ▀ 1 to 1 match UID to LID
- ▀ Map the Resources (CA-ACF2 CLASMAP to obtain 3 character type)
- ▀ Alter ISV interfaces - usually read the manual
- ▀ Alter any non-SAF compliant interfaces
- ▀ Capturing Passwords



SMPO

Software Migration Project Office

Execution - CA-ACF2

Tivoli

UID	USED IN RULES	USED IN GRS	IDS ONLY
****SLACKER	0	4	0
HR88*****	2000	0	1
HR55*****	1	1	30000
HR99*****	75	90	2500

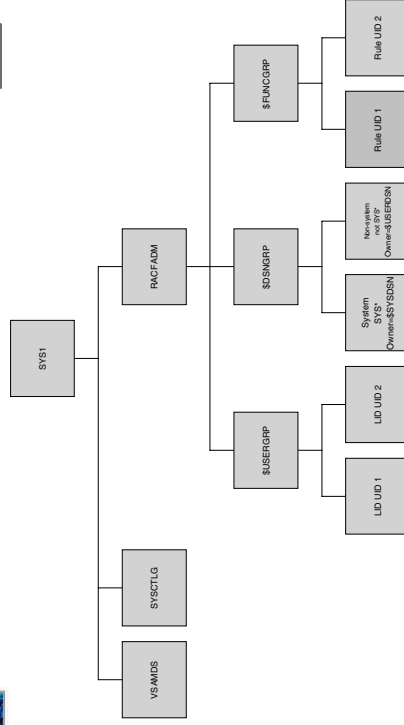


SMPO

Software Migration Project Office

Execution

Tivoli

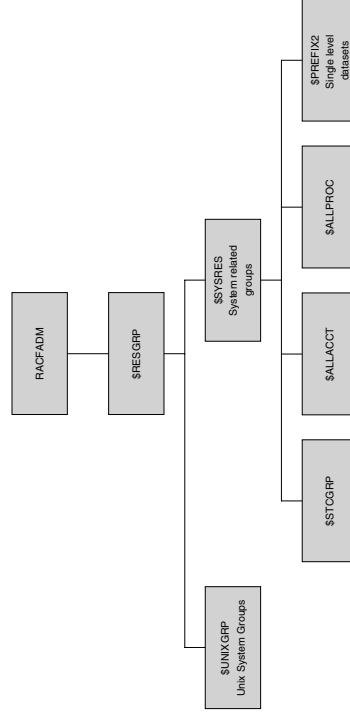


SMPO

Software Migration Project Office

Execution

Tivoli



SMPO

Software Migration Project Office



Execution

Tivoli

- The tool can run anywhere - (as long as its licensed)
- The tool can be run to review reports even prior to the RACF system being available.
- RACF database load must be run on a RACF system
- Can not run 2 security systems on the same MVS image.
 - Takes an IPL to swap between systems
 - We have run them on the same JES, and SYSplex - may need short term exit to do it (short term - assumes IDs, resources match)
- Develop the script while yet in the development phase.
 - Run Tool, Load database, IPL, back-out plan --- test test test

SMPO

Software Migration Project Office



Conclusions

Tivoli

- You will know your security environment better than you have ever known it.
- Not easy, but attainable
- The technical hurdles have always been cleared

SMPO

Software Migration Project Office