

# User Experiences with Thruput Manager Automation Edition

Sam Knutson  
GEICO

[sknutson@geico.com](mailto:sknutson@geico.com)

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## Biography

- **Sam Knutson** System z Team Leader, GEICO
- 25 years as a mainframe professional
- Previous roles include Application Developer, Systems Programmer, ISV Support, ISV Developer, Capacity Planning, Performance, and Availability



# GEICO Company Overview



- GEICO pioneered the concept of Direct-To-Consumer Insurance sales, eschewing the traditional agent model used by most providers. And it has paid off; GEICO is the 3<sup>rd</sup> largest auto insurer in the US. GEICO is a subsidiary of Warren Buffet's Berkshire Hathaway.
- 11 million auto policyholders and growing
- 27,000 associates
- 12 major offices around the country
- 24 hour service 365 days a year
- Companies 75<sup>th</sup> Anniversary founded in 1936
- [GEICO.COM](http://GEICO.COM) used by customers and our call center operators



# GEICO System z Environment

- Hardware
  - System z196 and z10 processors
  - Multiple Parallel Sysplex
    - Infiniband (PSIB) coupling links
- Software
  - z/OS 1.12
  - CICS TS 4.1 and DB2 9 NFM
  - IMS 11
  - WMQ 7
  - CA, IBM and other vendor tools
- Batch
  - 85K – 150K jobs @ week



# Why are you attending this session?

- Hear first hand experiences of installing and deploying Thruput Manager AE particularly newer components like SLM & PCS?
- Learn about how others are approaching batch management?
- Learn how to reduce mainframe software costs?
- Looking for the caveman?



Movie poster by [Bill Gold](#)

## Thruput Manager (some of the parts)

- Thruput Manager V6R2.0 AT PTF TMT6216
  - AE & PCS installed
- AE
  - DCS avoids jobs waiting for data sets alerts sent to users and operations i.e. **DTM7108I Please free data set U06T03.CLIST CN(INTERNAL) DTM7109I Needed by JOB39694 DSS06ZSK CN(INTERNAL)**
  - JLS impose limits on groups of jobs for concurrent execution
  - JBS insures jobs run where they need to similar to scheduling environments
  - JSS reduces HSM & VTS delays in running jobs
  - DBS manage tape drive over allocation
  - JTS support simple user job deferred execution



## Thruput Manager (a little of what we do)

- JAL and DAL both used procedural language allows modification of job attributes as in assembler JES exits
- JES2 EXIT 6 still performs some standard enforcement
- Used for JOB CLASS assignment, resource routing
- Table driven SYSOUT adjustment
- Table driven ACCOUNT code validation
- Software Asset Management
- Job Routing explicit and assigned JBS
- Job Limits for hardware outages and user behavior modification
- Fix problems with user JCL try to prevent unproductive execution time

## Test Batch jobs

- Test batch jobs adhoc submission by live humans
- automated submissions by CLIST or SAS programs
- WLM DISCRETIONARY goal for most of this work small subset run with low importance velocity goal
- VTS tapes for almost all processing. Not permitted to use high capacity native tapes
- Arrival rate varies widely
- TM/SLM is the feature we use to manage this work





## PROD Batch jobs

- CA-7 (CA7PROD)
- Automation and System Management Products
- CLASS P NORMAL PROD BATCH
  - WLM PRODBAT or HOTBAT VELOCITY GOALS
  - TM/PCS manages this work in CA-7 (CA7TEST)
- DEMAND “data center support or on-line” must run jobs
  - SMF DUMPS
  - CLASS J IMS Message Processing Regions ( IMS/DC on-line transactions)
  - Real Time SYNCPOINT process for DRP

## TM/SLM Early Customer

- July 2005 purchased two additional components to qualify for free upgrade later for TM/AE
  - TM/Robotic Setup Services (TM/RSS) purchased
  - TM/User Control Services (TM/UCS) purchased
  - Previously enabled JSS, MHS, MELLON, DCS, JBS, JCS, JLS
  - Dynamic INIT was a big selling point for AE
  - “We will now have the tools we to put much of the batch workload on an intelligent policy based auto-pilot!” Sam Knutson
- TM/DBS in ACTIVE mode thought to be a requirement but found that SLM had benefits and operates just fine with DBS in PASSIVE mode
- GEICO later migrated DBS to ACTIVE mode
- Quick Start process used and still works though we intend to revisit allowed simple mapping of old job classes to Service Level Manager goals

## TM/SLM Changes & Notes

- PARMLIB JE2PARM updates
- PARMLIB TMSS00 updates
  - /\* COLLECT SMF DATA DURING JOB ANALYSIS \*/
  - TM SMF TYPE(129) ANALYZER DCS DBS SLM
  - /\*\*\*\*\* SERVICE LEVEL MANAGER FILE  
\*\*\*\*\*/
  - FILE SLM\_COLLECTION DSS.THRUPUT.TEST.SLM
- Define WLM classes \$BATLO, \$\$SLM, \$BATMD, \$BATHI
- Requirement for TEXT Reports needed not just charts
  - Peer sites have developed reports using SAS and may share

## INIT CLASS config before SLM

```
"OC C ($TI (21) , C=IHGFE ) NOOUTPUT"  
"OC C ($TI (22) , C=XK ) NOOUTPUT"  
"OC C ($TI (23-26) , C=ABCDGHEF) NOOUTPUT"  
"OC C ($TI (27-30) , C=GHEFABCD) NOOUTPUT"  
"OC C ($TI (31-39) , C=I ) NOOUTPUT"  
"OC C ($TI (40-44) , C=L ) NOOUTPUT"  
"OC C ($TI (45-49) , C=Z ) NOOUTPUT"  
"OC C ($TI (50-70) , C=P ) NOOUTPUT"  
"OC C ($SI (01-70) ) NOOUTPUT"
```

**JES2 INITs and WLM Policy both factors to deliver service**

# TM/SLM Policy

```

- File
----- TM/SLM Definition Services -----
Service Group Definition

Command ==> _

Policy: SLMPOL01 Description: SLM managed batch
Last Modified: 2011/05/25 08:49:04 By: U06T03

-----JobClass Service Group----- --Service Mode-- -BI-
Control Center: $CLSPRTY TYPE: A STANDARD 3
Description: Class A Default_____

SLA ISPF Panelid: _____
Aging Limit: A_ ( A Acceptable, C Critical, C3, C2, or C1 )

Service Times in the following line are expressed as mmm:ss from LEFT to R
_0:00 to Minimum, _1:00 to Target, _5:00 to Acceptable

Enter "/" to Update Constraints Enabled
. Constrain by Number of Active Jobs N
. Constrain by CPU Utilization N
. Capacity Management Constraints N

Enter "/" to Update Options
. Member Job Selection Starting Points N
. Generate Job Summary Y
. Use Job Importance N
  
```

## TM/PCS Changes

- Define WLM classes
- New started task TMPCS
  - TCP ports to connect all the systems star topology
  - WLM and RACF updates
- CA-7 started task updates
- CA-7 security changes
- Allocate new files for Thruput manager including AMD which houses policy and experience files
- Schedule recurring jobs to extract data from CA-7 and process experience data using JTS will convert to CA-7 at some point

## TM/PCS CA-7 Changes to INISH deck

SVCNO,SASSVC=YES,**XTMNAME=CA7T**  
APPLCTN,NAME=SASSRMS1,ATTR=PERM  
APPLCTN,NAME=SASSRMS2,ATTR=PERM  
APPLCTN,NAME=SASSPROG,ATTR=LOAD  
APPLCTN,NAME=SASSXX05,ATTR=RES  
**APPLCTN,NAME=SASSX\$05,ATTR=RES**  
**APPLCTN,NAME=SASSXX11,ATTR=RES**  
**APPLCTN,NAME=SASSXX13,ATTR=RES**  
**APPLCTN,NAME=SASSXX17,ATTR=RES**  
**APPLCTN,NAME=SASSXX20,ATTR=RES**

## TM/PCS

- ALL CA7TEST submitted batch jobs run under PCS control as MANAGED mode and SLA has been maintained or improved each day with less strenuous WLM goals for the batch
- >2800 jobs each day executed in parallel production cycle and environmental support
- All test work runs managed by TM/SLM
- CA7PROD working fine in MONITORED mode reviewing data and planning for MANAGED mode
- Rapid progress during the early availability period new development was done to address requirements found at GEICO







# PCSMON (RO) Applications

```

- GoTo View Filter Sort ----- TM/PCS Services ----- Glossary Help
View Active Battle Plan Applications
Command ==>
Cycle Date/Time - From: Mar 13,2012 17:45 To: Mar 14,2012 17:45
Current Date/Time: Mar 14,2012 04:01:41
Line Commands: S - Display Job Trees O - View Defaults/Options
Application Name: * Sorted by: Late Job Trees Line 1 of 43
App P M Exp/Actual-Date/Time Acceptable -E/A- Job Tree Counts -Job Counts-
--Name-- I --Status--- M --Starting-- --Ending--- --Time--- Elpsd -Late- -Total- Halted -Done- InProg Pending -Total- -Done- Active Pe
UCC7MLB 3 Pending V Mar 14 04:00 Mar 14 15:00 Mar 14 17:45 11:00 2 4 0 0 0 4 4 0 0
APCYCLE 3 In Progress Mar 12 18:00 Mar 14 11:09 Mar 14 17:45 41:09 115 6 0 105 0 10 315 289
BACCREC 3 In Progress Mar 13 00:21 Mar 14 11:00 Mar 14 17:45 34:39 6 0 4 0 0 2 10 5 0
BALANCE 3 In Progress Mar 12 18:03 Mar 14 11:05 Mar 14 17:45 41:02 120 0 0 115 0 5 122 117
CYCLE 3 In Progress Mar 12 18:00 Mar 14 14:30 Mar 14 17:45 44:30 156 0 0 141 1 14 844 788
DASD 3 In Progress Mar 13 18:00 Mar 14 06:00 Mar 14 17:45 12:00 4 0 1 0 0 3 15 1 0
DATSAN 3 Pending Mar 14 11:00 Mar 14 17:00 Mar 14 17:45 06:00 2 0 0 0 0 0 2 0 0
ENSUPSRV 3 In Progress Mar 12 18:45 Mar 14 21:39 Mar 15 02:55 50:54 0 0 40 22 1 17 3466 1761
ESSUPSV 3 In Progress Mar 12 21:00 Mar 14 14:30 Mar 14 17:45 41:30 0 0 6 5 0 1 8 6 0
EXCEED 3 In Progress Mar 12 18:01 Mar 14 14:30 Mar 14 17:45 44:29 0 139 0 130 1 8 373 359
IBACKREC 3 In Progress Mar 13 07:30 Mar 14 09:00 Mar 14 17:45 25:30 0 10 0 6 1 3 11 6 0
IDBADMIN 3 In Progress Mar 13 14:08 Mar 14 17:44 Mar 14 18:05 27:36 0 585 0 141 1 443 585 141
IVERFMGT 3 In Progress Mar 13 18:00 Mar 14 17:30 Mar 14 18:27 23:30 0 31 0 19 0 12 34 21
IVENDOR 3 In Progress Mar 13 18:00 Mar 14 14:01 Mar 14 17:45 20:01 0 4 0 2 0 2 4 2
MASSPRT 3 In Progress Mar 13 07:30 Mar 14 15:15 Mar 14 17:45 31:45 0 4 0 2 0 2 20 10
MDIRMAIL 3 In Progress Mar 13 09:28 Mar 14 06:00 Mar 14 17:45 20:32 0 2 0 1 0 2 4 2
NPOLCLM 3 In Progress Mar 12 18:03 Mar 14 15:51 Mar 14 17:48 45:48 0 0 0 32 1 5 109 92
TESTING 3 In Progress Mar 13 07:30 Mar 14 14:30 Mar 14 17:45 31:00 0 4 0 2 0 0 10 5
UCCMUMNY 3 In Progress Mar 12 18:00 Mar 14 17:00 Mar 14 19:00 47:00 0 90 0 44 0 0 46 44
UDBMAIN1 3 In Progress Mar 13 17:12 Mar 14 17:39 Mar 14 18:06 24:27 0 50 0 3 0 47 68 3
Unamed 3 Done Mar 12 18:13 Mar 13 19:29 Mar 14 17:45 25:16 0 4 0 4 0 0 4 4
ACLAIMS 3 Done Mar 12 18:03 Mar 13 18:24 Mar 14 17:45 24:21 0 8 0 8 0 0 8 8
ACTUARY 3 Done Mar 12 18:04 Mar 13 18:38 Mar 14 17:45 24:34 0 9 0 9 0 0 31 31
APOLICY 3 Done Mar 13 18:07 Mar 13 18:10 Mar 14 17:45 00:03 0 1 0 1 0 0 1 1
ASALES 3 Done Mar 12 18:18 Mar 13 18:17 Mar 14 16:59 23:59 0 2 0 2 0 0 2 2
AUTO 3 Done Mar 13 00:23 Mar 14 00:23 Mar 14 17:45 24:00 0 2 0 2 0 0 2 2
BILLING 3 Done Mar 12 18:07 Mar 13 18:07 Mar 14 17:45 24:00 0 0 0 0 0 0 0 0
CLAIMS 3 Done Mar 12 18:01 Mar 14 00:23 Mar 14 17:45 30:22 0 40 0 40 0 0 139 139
CORPBAL 3 Done V Mar 13 18:35 Mar 13 18:36 Mar 14 17:45 00:01 0 1 0 1 0 0 2 2
CORPCLNT 3 Done Mar 12 18:04 Mar 13 18:14 Mar 14 17:45 24:10 0 0 0 0 0 0 2 2
FIRS 3 Done Mar 13 18:29 Mar 13 18:30 Mar 14 17:45 00:01 0 1 0 1 0 0 2 2
FGLANCE 3 Done Mar 12 18:20 Mar 13 18:21 Mar 14 17:45 24:01 0 0 0 0 0 0 0 0
INTERNET 3 Done Mar 12 18:04 Mar 14 00:23 Mar 14 17:45 30:19 0 0 0 0 0 0 18 18
NONAUTO 3 Done Mar 12 18:13 Mar 13 18:23 Mar 14 17:45 24:10 0 4 0 4 0 0 8 8
NMPOLICY 3 Done Mar 12 18:03 Mar 14 00:23 Mar 14 17:45 30:20 0 8 0 8 0 0 8 8
PMS17ZA3 3 Done Mar 12 18:05 Mar 13 18:19 Mar 14 14:06 24:14 0 4 0 4 0 0 4 4
POLHDR 3 Done Mar 13 00:26 Mar 14 00:26 Mar 14 17:45 24:00 0 2 0 2 0 0 2 2
PRB 3 Done Mar 13 21:00 Mar 14 00:47 Mar 14 17:45 03:47 0 4 0 4 0 0 5 5
RATABASE 3 Done Mar 13 00:15 Mar 14 00:15 Mar 14 17:45 24:00 0 6 0 6 0 0 6 6
SALES 3 Done Mar 12 18:01 Mar 14 00:03 Mar 14 17:45 30:02 0 10 0 10 0 0 66 66
STATRPT 3 Done Mar 13 00:21 Mar 14 00:22 Mar 14 17:45 24:01 0 2 0 2 0 0 2 2
UWS 3 Done Mar 13 18:01 Mar 14 00:08 Mar 14 17:45 06:07 0 4 0 4 0 0 5 5
CYCLE 3 Done Mar 12 18:01 Mar 14 00:45 Mar 14 17:45 30:44 0 64 0 64 0 0 163 163
*****
*CMD

```



# 3270 Terminals

- TN3270 emulation you can use Wide and Tall 3270 screen i.e. 62x132 on large monitor(s)
- My favorite Vista tn3270 [tombrennansoftware.com](http://tombrennansoftware.com)
- IBM's Personal Communications -- aka PCOM:
  - Limited choices or edit the .WS file [3270]  
ScreenSize=62x132





## Thruput Manager Challenges

- Configuration management using ISPF panels for TM/DBS, TM/SLM, TM/PCS
- TM/PCS deployment requires commitment from Job Scheduling team
- TM/PCS visualization of data limited to 3270
  - Large format “tall and wide” 3270 screens helpful
- CA-7 exits one time configuration and ongoing coordination due to exit 05
- Systems Programmers, Performance experts, and Scheduling team must cooperate
- Manual steps to gather, package, and deliver documentation
- Outages for normal install by IPL infrequent
- No support in UDF for CA-SYSVIEW

## Where are we going?

- MANAGED mode for CA7 production to improve throughput and reduce delays due to missed opportunities to optimize critical path
- Leverage Capacity Management to reduce software costs and allow less restrictive control of resources at LPAR level
- Eliminate manually updated critical path job monitoring run sheet
- Policy driven system managed batch workload management using business requirements and real time situational feedback
- Further eliminate system affinities in batch jobs