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#!/bin/ksh
# Created by Dean Rowswell, IBM, March 20, 2013
# Modified by Dean Rowswell, IBM, April 24, 2013
#    Calculate the USED Processor and Memory values
# Modified by Dean Rowswell, IBM, May 7, 2013 - Version 1.0
#    Display Memory and Processor config for each LPAR
#    Accept parameters for the HMC(s) and HMC user to use
#    Correctly determine HMC information for Version 7.3.5
#    Ignore mem_mode for POWER5 servers
# Modified by Dean Rowswell, IBM, May 9, 2013 - Version 1.1
#    Calculate the LPAR totals for Memory, Processor Entitlement and Virtual Processors
# Modified by Dean Rowswell, IBM, May 9, 2013 - Version 1.2
#    Skip any HMC which does not have password-less ssh setup
# Modified by Dean Rowswell, IBM, May 10, 2013 - Version 1.3
#    Remove the G in the LPAR memory column and add GB label to header
#    Calculate the Entitlement to Virtual Processor ratio for each LPAR and overall system
# Modified by Dean Rowswell, IBM, May 10, 2013 - Version 1.4
#    Fixed bug with divide by zero error if LPAR is in the Not_Activated state and the Virtual
Processor value is 0
# List HMC, POWER server, and LPAR info using the HMC
#
# Assumption:
#    Password-less ssh must be setup from this system to the HMC(s) in the HMC_LIST variable

HMC_LIST="hmc1 hmc2"
HMC_USER="hscroot"

VER="1.4"

# Parameter checks
if [ ${#*} -ne 0 ]
then
        while getopts :vVh:u: PARMS
        do
                case $PARMS in
                        v|V)    echo "This is get_lpar_info version: $VER" ; exit ;;
                      h)      HMC_LIST=`echo $OPTARG | tr ',' ' '` ;;
                      u)      HMC_USER=${OPTARG} ;;
                        ?)      echo "\nUSAGE:\t$0 [ -v, -V, -h, -u ]"
                                echo "\t-v or -V will print out the version and exit"
                                echo "\t-h HMC hostname(s) or IP address(es) COMMA SEPARATED to use"
                                echo "\t-u HMC userid to use (only required if hscroot not used)\n"
                              echo "EXAMPLE: get_lpar_info -h hmc1,hmc2\n"
                                exit ;;
                esac
        done
fi

for HMC in ${HMC_LIST}
do
       ssh ${HMC_USER}@${HMC} date >/dev/null 2>/dev/null
       if [ $? -ne 0 ]
       then
              echo "\nPassword-less SSH access to HMC ${HMC} with user ${HMC_USER} is not setup\n"
              continue
       fi
       echo "\n================================="
       echo "HARDWARE MANAGEMENT CONSOLE"
       echo "Hostname: ${HMC} / \c"
       ssh ${HMC_USER}@${HMC} "lshmc -v | grep -E 'TM|SE|RM'" | sed 's/eserver xSeries 336 -\[//g' |
sed 's/]-//g' | tr -s '\n' ' ' | awk '
       {MODEL = $2 ; SERIAL = $4 ; VERSION = $6};
       END { print "Model: " MODEL "\nSerial: " SERIAL " / Ver: " VERSION}'
       echo "`date`"
       echo "================================="
       MANAGEDSYS=`ssh ${HMC_USER}@${HMC} "lssyscfg -r sys -F type_model*serial_num|sort"`

       for SYSTEM in ${MANAGEDSYS}
       do
              echo "\nIBM POWER SYSTEM: ${SYSTEM} / SysFW Ver: \c"
              ssh ${HMC_USER}@${HMC} "lslic -m ${SYSTEM} -F ecnumber:activated_level|sed 's/:/_/g'|cut
-c 3-"|tr -s '\n' ' '

              ssh ${HMC_USER}@${HMC} "lshwres -m ${SYSTEM} -r proc --level sys -F
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installed_sys_proc_units:configurable_sys_proc_units:curr_avail_sys_proc_units"|awk -F: '
               {INSTALL = $1 ; CONFIG = $2 ; AVAIL = $3};
               END { print "\n   PROC INFO:\t" INSTALL " Installed / " CONFIG " Configurable / " CONFIG-
AVAIL " Used / " AVAIL " Available "}'

               ssh ${HMC_USER}@${HMC} "lshwres -m ${SYSTEM} -r mem --level sys -F
installed_sys_mem:configurable_sys_mem:curr_avail_sys_mem:sys_firmware_mem:mem_region_size" |awk -F: '
               {INSTALL = $1 ; CONFIG = $2 ; AVAIL = $3 ; SYSFW = $4 ; LMB = $5};
               END { print "   MEM INFO:\t" INSTALL/1024 " GB Install / " CONFIG/1024 " GB Config / "
(CONFIG-AVAIL)/1024 " GB Used / " AVAIL/1024 " GB Avail / " SYSFW/1024 " GB SysFW / " LMB " MB LMB"}'

               echo "   LPAR INFO:   NOTE: THE MEMORY AND PROCESSOR VALUES ARE FROM THE ACTIVE/RUNNING
LPAR VALUES (NOT FROM LPAR PROFILE)\n   ID  NAME                 TYPE      OS_VER
STATE        MEM(GB) MODE    PROC    MODE             POOL  ENT  VP  WT ENT/VP"

               Get_LPAR_Info() {
               LPARS=`ssh ${HMC_USER}@${HMC} "lssyscfg -r lpar -m ${SYSTEM} -F
lpar_id:name:lpar_env:os_version:state|sed 's/ /_/g'|sort -n"`
               for LPAR in ${LPARS}
               do
                              printf "      %-24s\n" ${LPAR}
               done

               PROC=`ssh ${HMC_USER}@${HMC} "lshwres -m ${SYSTEM} -r proc --level lpar -F
lpar_id:curr_proc_mode:curr_sharing_mode:curr_shared_proc_pool_id:run_proc_units:run_procs:run_uncap_we
ight|sort -n"`
               for LPAR in ${PROC}
               do
                      printf "      %-24s\n" ${LPAR}
               done

               ssh ${HMC_USER}@${HMC} "lshwres -m ${SYSTEM} -r mem --level lpar -F
lpar_id:mem_mode:run_mem" >/dev/null 2>/dev/null
               if [ $? -eq 0 ]
               then
                      MEM=`ssh ${HMC_USER}@${HMC} "lshwres -m ${SYSTEM} -r mem --level lpar -F
lpar_id:mem_mode:run_mem|sort -n"`
                      for LPAR in ${MEM}
                      do
                             printf "      %-24s\n" ${LPAR}
                      done
               else
                      MEM=`ssh ${HMC_USER}@${HMC} "lshwres -m ${SYSTEM} -r mem --level lpar -F
lpar_id:run_mem|sort -n"`
                      for LPAR in ${MEM}
                      do
                             printf "      %-24s\n" ${LPAR}
                      done
               fi
               }

               Get_LPAR_Info | sort -n | awk -F: '{
               if (NF == 5) { LPAR_ID=$1; LPAR_NAME=$2; OS_TYPE=$3; OS_VER=$4; STATE=$5 }
               if (NF == 3) { MEM_MODE=$2; MEM=$3 }
               if (NF == 2) { MEM_MODE="NA"; MEM=$2 }
               if (NF == 7) { PROC_MODE=$2; SHARE_MODE=$3; SHARED_POOL=$4; PROC_UNITS=$5; VIRT_PROC=$6;
WEIGHT=$7 }
               if ((length(LPAR_ID) != 0 && length(MEM_MODE) !=0 && length(PROC_MODE) != 0)) {
               if (VIRT_PROC == 0) { RATIO = "NA"  } else { RATIO = PROC_UNITS/VIRT_PROC}
               printf "   %3d %-20s %-9s %-24s %-13s %5.1f %-8s %-7s %-17s %-3d %-4.2f %3d %3d %5.2f\n",
LPAR_ID, LPAR_NAME, OS_TYPE, OS_VER, STATE, MEM/1024, MEM_MODE, PROC_MODE, SHARE_MODE, SHARED_POOL,
PROC_UNITS, VIRT_PROC, WEIGHT, RATIO; TOTAL_MEM += MEM; TOTAL_PROC_UNITS += PROC_UNITS; TOTAL_VIRT_PROC
+= VIRT_PROC ; LPAR_ID=""; MEM_MODE=""; MEM=""; PROC_MODE="" }
               } END {print "    ------------------------------------------------------------------------
------------------------------------------------------------" ; printf "       LPAR TOTALS %63.1f
%43.2f %3d %9.2f\n", TOTAL_MEM/1024, TOTAL_PROC_UNITS, TOTAL_VIRT_PROC,
TOTAL_PROC_UNITS/TOTAL_VIRT_PROC}'
       done
done
```