

# What's New with Tivoli System Automation for z/OS

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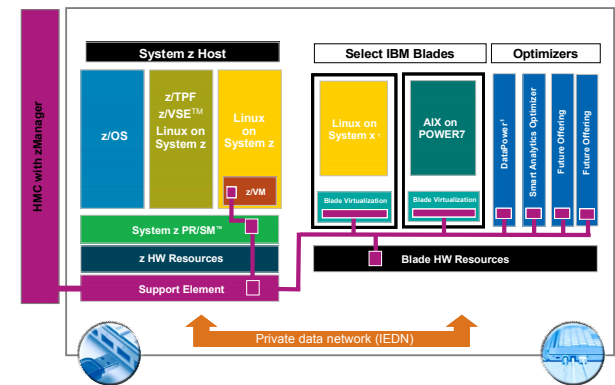
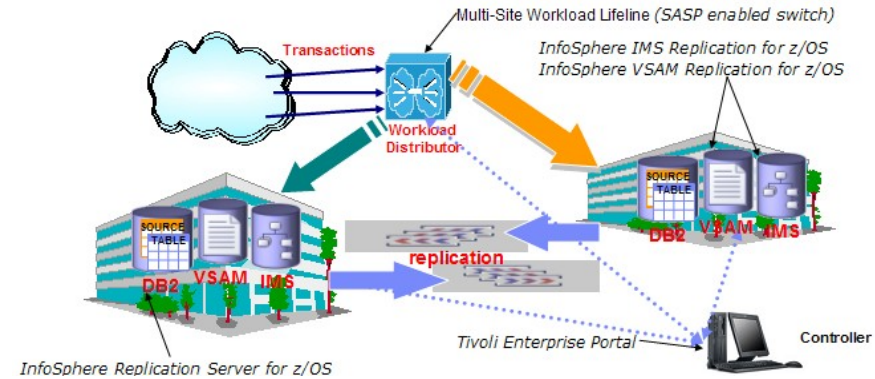
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# Focus Areas...

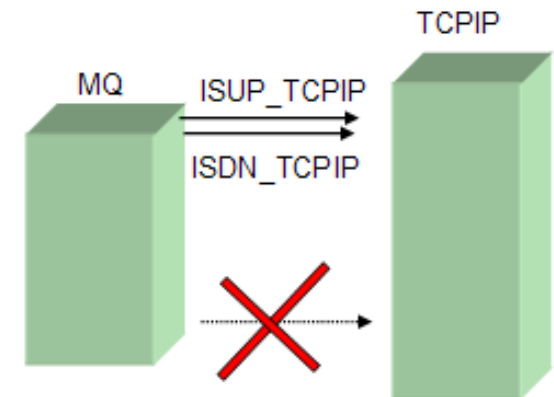
- **Active/Active Support**
  - Handshaking with A/A Controller
  - Sample policies for components used by Active/Active Solution
  - Rolled back to SA V3.3
  
- **zEnterprise (zBX support)**
  - Comprehensive API for automation scripts manipulating zBX objects
    - Blade Center, Blades
    - Virtual Servers, Workloads
  
- **Usability Enhancements**
  - Graphical Display (Topology View) in TEP
  - SDF enhancements
  - Use of entire 3270 screen



## Focus Areas... (2)

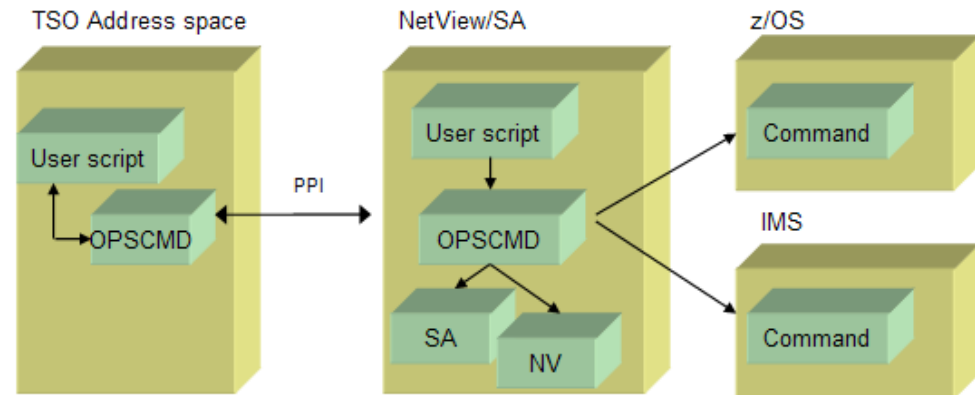
- Customer Requirements

- Watching JobLog for messages ready for Automation
- Extended Status Command Enhancements
- File Update Enhancements
- Staged IPL via RunModes
- Recycle Enhancements
- ...



- Easier Migration to SA z/OS

- Auto-discovery tool
- Emulators (CA/OPS, BMC)
  - OPSCMD, OPSVALUE, ...
  - Relational Data Services
  - IMFEXEC (Auto/Operator)
  - AOEXEC



# zEnterprise

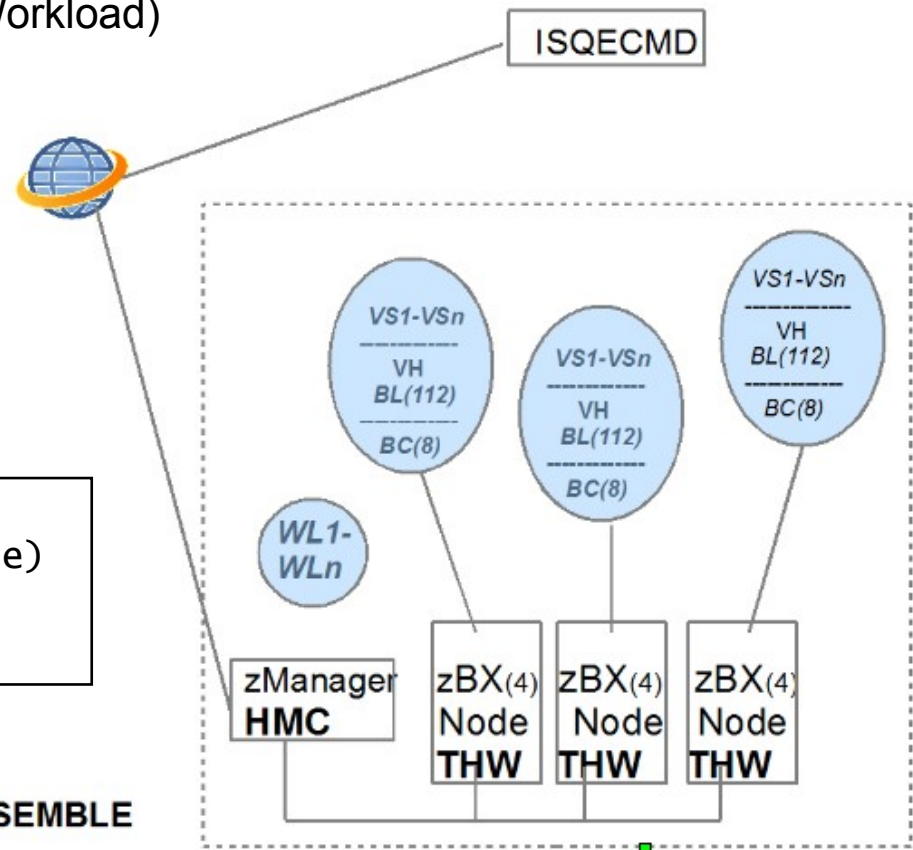
# zEnterprise Support

- New ISQECMD command to manipulate zBX objects
  - Show properties
  - List objects (BC, Blades, VH, VS, Workload)
  - Get Status
  - Activate/Deactivate
  - Discovery
  - Subscribe / Unsubscribe

```

→ LIST WL
AOFB0021 LIST WL Ensemble1 WL(webSphere)
AOFB0021 LIST WL Ensemble1 WL(DB2)
AOFB0021 LIST WL REPORT COMPLETE
  
```

ENSEMBLE





# Example: List + Activate Virtual Server

```

NV54 SA34 NM Tivoli NetView IPSN7 YDR 12/09/11 10:52:39
* IPSN7 ISQECMD ENSR35 LIST VS
U IPSN7 ISQ801I ENSR35 SC ISQ417I LIST STATUS(SUCCESS)
U IPSN7 ISQ801I ENSR35 SC AOFB0021 LIST ENSR35 STATUS(SUCCESS)
TSTIME(111209105237)
U IPSN7 ISQ801I ENSR35 SC AOFB0021 ENSR35 CPC(R35) VH(C.1.12) TYPE(power-vm)
U IPSN7 ISQ801I ENSR35 SC AOFB0021 VS(cloudpocvs1)
U IPSN7 ISQ801I ENSR35 SC AOFB0021 ENSR35 CPC(R35) VH(C.1.12) TYPE(power-vm)
U IPSN7 ISQ801I ENSR35 SC AOFB0021 VS(cloudpocvs2)
U IPSN7 ISQ801I ENSR35 SC AOFB0021 ENSR35 CPC(R35) VH(C.1.13) TYPE(power-vm)
U IPSN7 ISQ801I ENSR35 SC AOFB0021 VS(pbaxterictst1)
U IPSN7 ISQ801I ENSR35 SC AOFB0021 ENSR35 CPC(R35) VH(C.1.13) TYPE(power-vm)

```

```

NV54 SA34 NM Tivoli NetView IPSN7 YDR 12/09/11 15:33:30
* IPSN7 ISQECMD ENSR35 ACTIVATE VS NAME(SA34XSRV)
U IPSN7 ISQ801I ENSR35 SC ISQ417I ACTIVATE STATUS(SUCCESS)
U IPSN7 ISQ801I ENSR35 SC AOFB0001 ACTIVATE ENSR35 HMC(hmctrx)
STATUS(ACCEPTED) TSTIME(111209153240)
U IPSN7 ISQ856I ISQECMD: ACTIVATE ENSR35 TSTIME(111209153240)
STATUS(SUCCESS)
U IPSN7 ISQ801I ENSR35 AOFB0100 VS CLASS(virtual-server) CPC(R35)
VH(C.1.02) NAME(SA34XSRV) TYPE(x-hyp) NEWSTATUS(starting)
OLDSTATUS(not-operating)
U IPSN7 ISQ801I ENSR35 AOFB0100 VS CLASS(virtual-server) CPC(R35)
VH(C.1.02) NAME(SA34XSRV) TYPE(x-hyp) NEWSTATUS(operating)
OLDSTATUS(starting)
U IPSN7 ISQ801I ENSR35 AOFB0100 VS CLASS(virtual-server) CPC(R35)
VH(C.1.01) NAME(sazbx111) TYPE(x-hyp) NEWSTATUS(starting)
OLDSTATUS(not-operating)
U IPSN7 ISQ801I ENSR35 AOFB0300 VS CLASS(virtual-server) CPC(R35)
VH(C.1.02) NAME(SA34XSRV) TYPE(x-hyp) JOB(ACTIVATE VS)
STATUS(complete) CODE(200) REASON(0) ERROR(*)
-----

```

# Example: Get Workload Data

```

NV54 SA34 NM Tivoli NetView IPSN7 YDR 12/09/11 16:10:16
* IPSN7 ISOECMD ENSR35 WLDAPA WL(SA34)
U IPSN7 ISQ801I ENSR35 SC ISQ417I WLDAPA STATUS(SUCCESS)
U IPSN7 ISQ801I ENSR35 SC AOFB0015 WLDAPA ENSR35 STATUS(SUCCESS)
TSTIME(111209161016)
U IPSN7 ISQ801I ENSR35 SC AOFB0015 ENSR35 WL NAME(SA34)
U IPSN7 ISQ801I ENSR35 SC AOFB0015 NAME(Default) CAT() ISDEF(false) PANC(1)
PASTAT(active) DESC(SA34 TEST Workload)
U IPSN7 ISQ801I ENSR35 SC AOFB0015 ACTPP NAME(Default) ASTA(active)
U IPSN7 ISQ801I ENSR35 SC AOFB0015 DEFP NAME(Default) ASTA(active)
U IPSN7 ISQ801I ENSR35 SC AOFB0015 VS(SA34TST) TYPE(power-vm)
STATUS(not-operating) ITYPE(direct) DM(Y)
U IPSN7 ISQ801I ENSR35 SC AOFB0015 VS(SA34DEV) TYPE(power-vm)
STATUS(not-operating) ITYPE(direct) DM(Y)
U IPSN7 ISQ801I ENSR35 SC AOFB0015 VS(SA34XSRV) TYPE(x-hyp)
STATUS(not-operating) ITYPE(direct) DM(N)
U IPSN7 ISQ801I ENSR35 SC AOFB0015 VS(SA34TEMP) TYPE(power-vm)
STATUS(not-operating) ITYPE(direct) DM(Y)
U IPSN7 ISQ801I ENSR35 SC AOFB0015 WLDAPA REPORT COMPLETE
U IPSN7 ISQ856I ISQECMD: WLDAPA ENSR35 TSTIME(111209161016) STATUS(SUCCESS)
-----
  
```

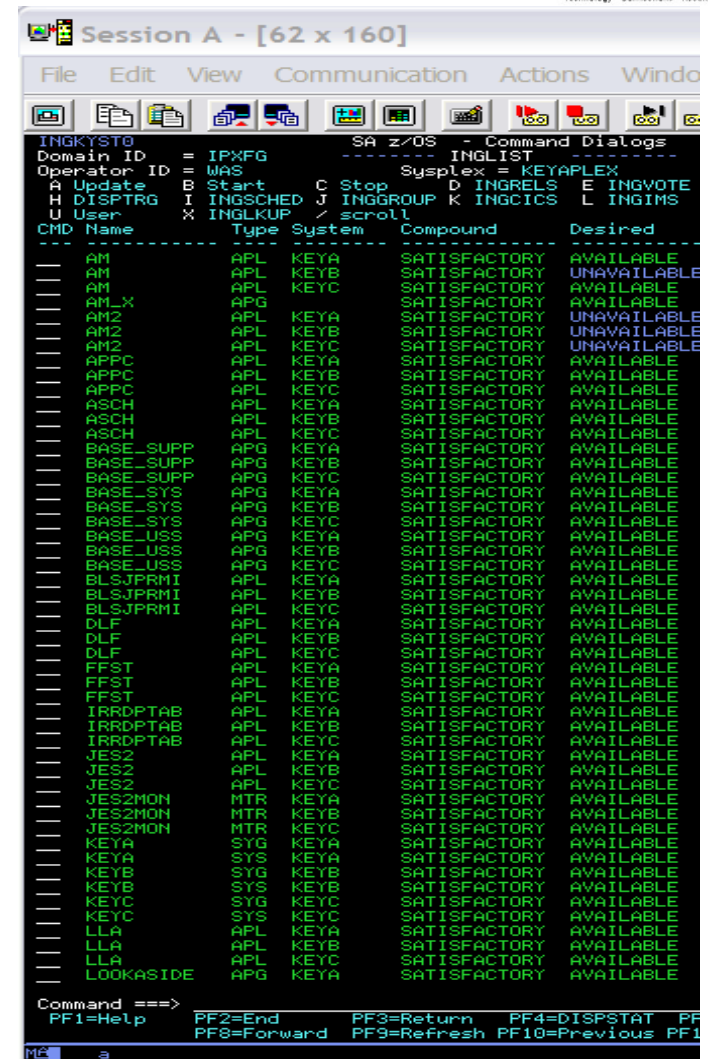




# Usability Enhancements

# Support of entire Screen Depth

- Most commands utilize all rows of the panel
  - screen sizes: 42 \* 80 -or- 62 \* 160
  - Command column is 2 characters long



```

Session A - [62 x 160]
File Edit View Communication Actions Window
INGKYSTG SA z/OS - Command Dialogs
Domain ID = IPXFG ----- INGLIST
Operator ID = WAS Sysplex = KEYAPLEX
A Update B Start C Stop D INGRELS E INGVOTE
H DISPTRG I INGSCHED J INGGROUP K INGCICS L INGIMS
U User X INGLKUP / scroll
CMD Name Type System Compound Desired
-----
AM APL KEYA SATISFACTORY AVAILABLE
AM APL KEYB SATISFACTORY UNAVAILABLE
AM APL KEYC SATISFACTORY AVAILABLE
AM_X APL APG SATISFACTORY AVAILABLE
AM2 APL KEYA SATISFACTORY UNAVAILABLE
AM2 APL KEYB SATISFACTORY UNAVAILABLE
AM2 APL KEYC SATISFACTORY UNAVAILABLE
APPC APL KEYA SATISFACTORY AVAILABLE
APPC APL KEYB SATISFACTORY AVAILABLE
APPC APL KEYC SATISFACTORY AVAILABLE
ASCH APL KEYA SATISFACTORY AVAILABLE
ASCH APL KEYB SATISFACTORY AVAILABLE
ASCH APL KEYC SATISFACTORY AVAILABLE
BASE_SUPP APL APG KEYA SATISFACTORY AVAILABLE
BASE_SUPP APL APG KEYB SATISFACTORY AVAILABLE
BASE_SUPP APL APG KEYC SATISFACTORY AVAILABLE
BASE_SYS APL APG KEYA SATISFACTORY AVAILABLE
BASE_SYS APL APG KEYB SATISFACTORY AVAILABLE
BASE_SYS APL APG KEYC SATISFACTORY AVAILABLE
BASE_USS APL APG KEYA SATISFACTORY AVAILABLE
BASE_USS APL APG KEYB SATISFACTORY AVAILABLE
BASE_USS APL APG KEYC SATISFACTORY AVAILABLE
BLSJFRMI APL APG KEYA SATISFACTORY AVAILABLE
BLSJFRMI APL APG KEYB SATISFACTORY AVAILABLE
BLSJFRMI APL APG KEYC SATISFACTORY AVAILABLE
DLF APL KEYA SATISFACTORY AVAILABLE
DLF APL KEYB SATISFACTORY AVAILABLE
DLF APL KEYC SATISFACTORY AVAILABLE
FFST APL KEYA SATISFACTORY AVAILABLE
FFST APL KEYB SATISFACTORY AVAILABLE
FFST APL KEYC SATISFACTORY AVAILABLE
IRRDPTAB APL KEYA SATISFACTORY AVAILABLE
IRRDPTAB APL KEYB SATISFACTORY AVAILABLE
IRRDPTAB APL KEYC SATISFACTORY AVAILABLE
JES2 APL KEYA SATISFACTORY AVAILABLE
JES2 APL KEYB SATISFACTORY AVAILABLE
JES2 APL KEYC SATISFACTORY AVAILABLE
JES2MON MTR KEYA SATISFACTORY AVAILABLE
JES2MON MTR KEYB SATISFACTORY AVAILABLE
JES2MON MTR KEYC SATISFACTORY AVAILABLE
KEYA SYG KEYA SATISFACTORY AVAILABLE
KEYA SYG KEYB SATISFACTORY AVAILABLE
KEYB SYG KEYB SATISFACTORY AVAILABLE
KEYB SYG KEYC SATISFACTORY AVAILABLE
KEYC SYG KEYC SATISFACTORY AVAILABLE
KEYC SYG KEYA SATISFACTORY AVAILABLE
KEYC SYG KEYB SATISFACTORY AVAILABLE
LLA APL KEYA SATISFACTORY AVAILABLE
LLA APL KEYB SATISFACTORY AVAILABLE
LLA APL KEYC SATISFACTORY AVAILABLE
LOOKASIDE APL KEYA SATISFACTORY AVAILABLE
Command ==>
PF1=Help PF2=End PF3=Return PF4=DISPSTAT PF
PF8=Forward PF9=Refresh PF10=Previous PF1
  
```

# Support of Screen Width > 80 Characters

- Provided for all Commands that have horizontal scrolling
  - INGLIST
  - DISPGW
  - DISPSTAT
  - DISPMTR
  - INGIMS (dependent regions)
  - INGAMS

```

INGKYST0 SA z/OS - Command Dialogs Line 1 of 107
Domain ID = IPXFG ----- INGLIST ----- Date = 02/05/11
Operator ID = WAS Sysplex = KEYAPLEX Time = 19:44:08
A Update B Start C Stop D INGRELS E INGVOTE F INGINFO G Members
H DISPTRG I INGSCHED J INGGROUP K INGCICS L INGIMS M DISPMTR T INGTWS
U User X INGLKUP / scroll
  
```

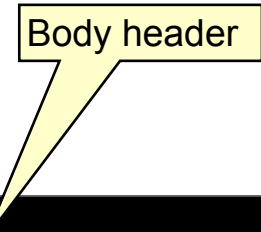
CMD	Name	Type	System	Compound	Desired	Observed	Nature	Automation	Startable	Health	Auto	Hold	Starttype	Stoptype	Trigger
—	AM	APL	KEYA	SATISFACTORY	AVAILABLE	AVAILABLE		IDLE	YES	N/A	YES	NO			
—	AM	APL	KEYB	SATISFACTORY	UNAVAILABLE	SOFTDOWN		IDLE	YES	N/A	YES	NO			
—	AM	APL	KEYC	SATISFACTORY	AVAILABLE	AVAILABLE		IDLE	YES	N/A	YES	NO			
—	AM_X	APG		SATISFACTORY	AVAILABLE	AVAILABLE	SERVER	INTERNAL	YES	N/A	YES	NO			
—	AM2	APL	KEYA	SATISFACTORY	UNAVAILABLE	SOFTDOWN		IDLE	YES	N/A	YES	NO			

Panel body supports 132 and 160 chars width



# SDF Enhancements...

- Support for multiple BODY sections in panel
  - BODYHEADER statement defines how to format the header
  - BODYTITLE statement defines the title text of the section.



- New Forward/Backward command

- New exit AOFEXX05 to support User symbols

- ProcOps resources shown in SDF

```

=====
Subsystem Sta 01/113(113) Jobname Reply ID / Message text -----
OM112C5 IMS1_DB_CTL IMS941C4 054 DFS996I *IMS READY* M941
OM11M2C5 IMS1_DB_MP1 NETASYST 027 DS1802A IPSFP REPLY WITH VALID NCCF SYSTEM OPERATOR COMMAND
OM11M2E2 IMS1_DB_MP2 IMS942C4 044 DFS996I *IMS READY* M942
OM11M2HD IMS1DB_DBERC
OM11M2HI IMS1DB_DLS
OM11M2RC IMSADPRT
OM11OC0 JLM501
OMVS JLM502
RACF JLM503
RESOLVER JLM504
RMF JLM505
RMPGAT JLM506
RRS JLM507
SNA4DBM1 JLM508
SNA4DI3T JLMT01
SNA4IRLH JLMT02
SNA4MSTR JLMT03
SYSVAPPL JLMT04
SYVSSI MSM
TCP1P NETCONV
TSO R001
VLF RODMLDAD
VTAM SNA3_LITE
ZFS
ELSJPRM1
TRDPTAB
SYSVIPLC
CANKEY4
GMFHS
IMS_DB_IRLM

Application Group 1/20(44)
SNA_X IMS_SUPPORT
BASE_SUPP IMSA_CSLMGR
BASE_SYS IMS1_CTRL
BASE_USS IMS2
CICS CICS_CTRL
CICS_SHARED IMS2_SUPPORT
GPSM LOOKASIDE
DB2 NETWORK
DB2_X OM11_CICS
IMS OM11_GROUP

=====
Jobname Message text +-----+
IMS94150 Q0S0008U STRUCTURE S941MSQV IS VOLATILE; CONSIDER STRUCTURE CHECKPOINT H941CQS
IMS94150 Q0S0008U STRUCTURE S941EMHQ IS VOLATILE; CONSIDER STRUCTURE CHECKPOINT H941CQS
IMS94150 Q0S0008U STRUCTURE S941MSQ0V IS VOLATILE; CONSIDER STRUCTURE CHECKPOINT H941CQS
IMS942C4 ADF501E 00:00:58 : RECOVERY FOR MINRES IMS2CTL.DFS3257I HALTED - 3 ERRORS SINCE 00:00:53 ON 06/29/2011 - CRITICAL ERROR T
IMS941C4 ADF501E 00:01:18 : RECOVERY FOR MINRES IMS1CTL.DFS3257I HALTED - 3 ERRORS SINCE 00:01:14 ON 06/29/2011 - CRITICAL ERROR T

=====
Gateway Message text /-----/
IPSFR0 ADF5681 11:01:56 : STATUS OF IPSFP OUTBOUND GATEWAY TO DOMAIN IPSFN IS INACTIVE
IPSFR0 ADF5681 11:01:56 : STATUS OF IPSFP OUTBOUND GATEWAY TO DOMAIN IPSFN IS INACTIVE
IPSFD0 ADF5681 11:01:56 : STATUS OF IPSFP OUTBOUND GATEWAY TO DOMAIN IPSFD IS INACTIVE
IPSF70 ADF5681 11:01:56 : STATUS OF IPSFP OUTBOUND GATEWAY TO DOMAIN IPSF7 IS INACTIVE
IPUFA0 ADF5681 11:01:56 : STATUS OF IPSFP OUTBOUND GATEWAY TO DOMAIN IPUFA IS INACTIVE
IPUFB0 ADF5681 11:01:56 : STATUS OF IPSFP OUTBOUND GATEWAY TO DOMAIN IPUFB IS INACTIVE
IPUFC0 ADF5681 11:01:56 : STATUS OF IPSFP OUTBOUND GATEWAY TO DOMAIN IPUFC IS INACTIVE
IPUFD0 ADF5681 11:01:56 : STATUS OF IPSFP OUTBOUND GATEWAY TO DOMAIN IPUFD IS INACTIVE
IPUFG0 ADF5681 11:01:56 : STATUS OF IPSFP OUTBOUND GATEWAY TO DOMAIN IPUFG IS INACTIVE
IPUFH0 ADF5681 11:01:56 : STATUS OF IPSFP OUTBOUND GATEWAY TO DOMAIN IPUFH IS INACTIVE

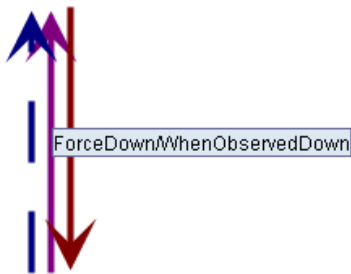
=====
Device Message text +-----+

=====
Date Time Subsystem Message text
=====
Applications in ERROR
=====
Monitor Status
C1CS1DB21 C1CS4RABEND
C1TORDB21 C141TRABEND
C1TORDB22 C142TRABEND
C1TORDB23 C143TRABEND
C1CS1CON1 C144TRABEND
C1CS1CON2 C145TRABEND
C1CS41S0S IMS1DC
C1CS43S0S IMS1QLDS1
C1CS44ABEND IMS1QLDS2
C1CS44S0S IMS2DC

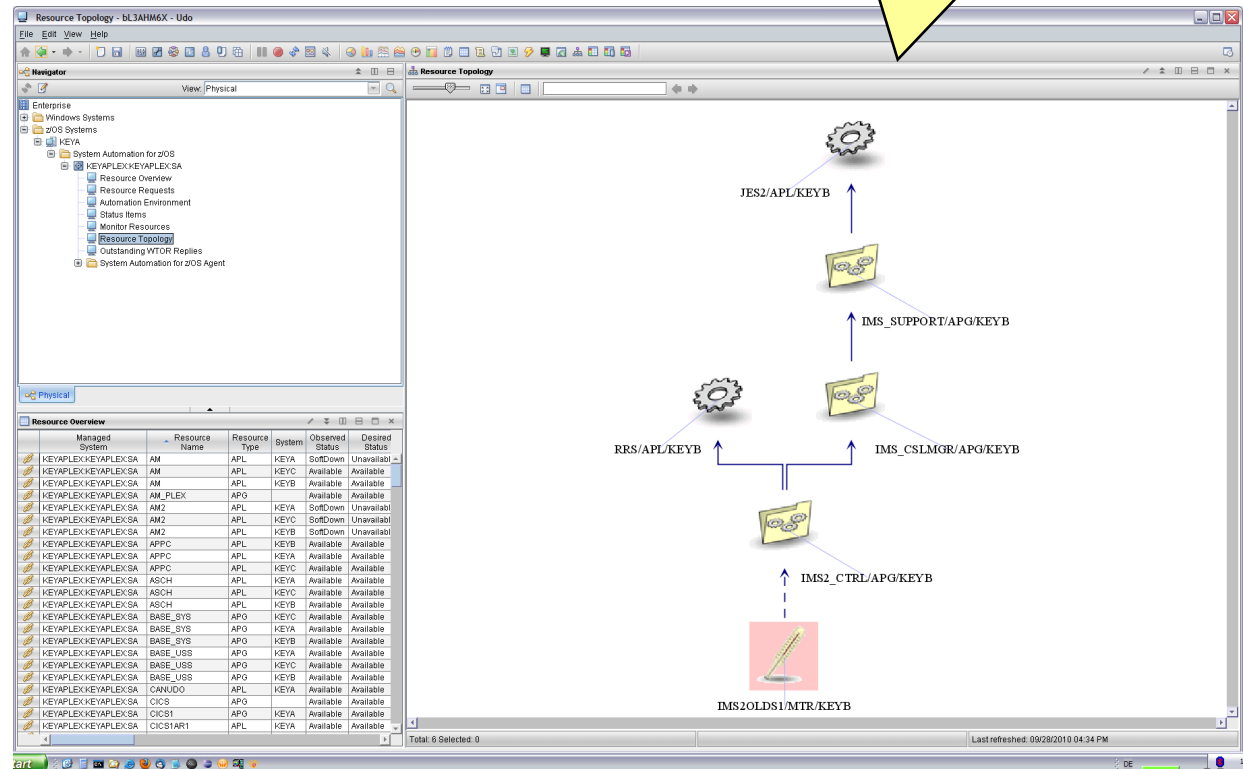
1=HELP 2=DETAIL 3=UP 6=ROLL 10=PREVIOUS 11=NEXT 12=TOP
13=EXPLAIN 14=SDFCONF 15=INGMSG6 16=DISPGW 17=SETSTATE 18=INGVOTE 19=INGREQ 20=OPC
22=DISPMTR 23=INGLIST 24=INGINF0
FU0U2044 096/007
  
```

# New TEP Workplace: Topology View

- Focused Resource and Request Mode used as filter criteria
  - Start, Stop, Group -or- All
- Relationships shown by different colors



Dependency graph

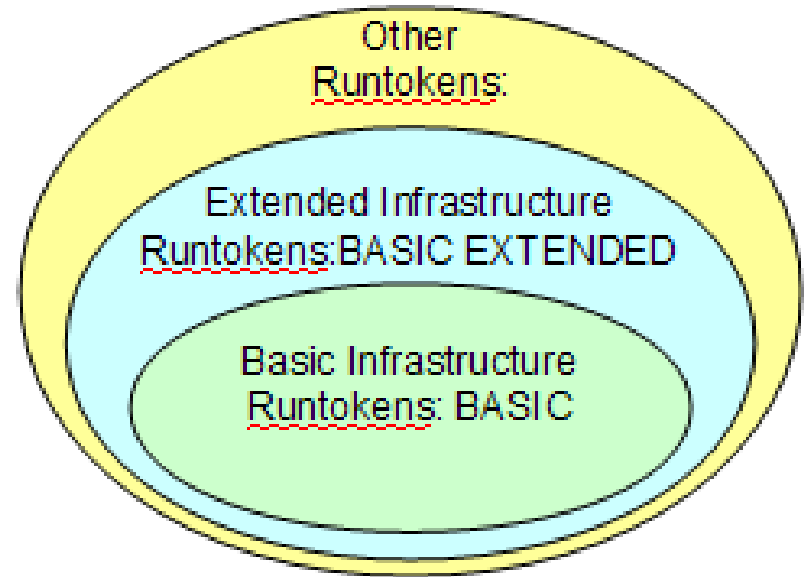


Managed System	Resource Name	Resource Type	System	Observed Status	Desired Status
KEYAPLEX-KEYAPLEX-SA	AM	APL	KEYA	SoftDown	Unavailabl
KEYAPLEX-KEYAPLEX-SA	AM	APL	KEYC	Available	Available
KEYAPLEX-KEYAPLEX-SA	AM	APL	KEYB	Available	Available
KEYAPLEX-KEYAPLEX-SA	AM_PLEX	APO		Available	Available
KEYAPLEX-KEYAPLEX-SA	AM2	APL	KEYA	SoftDown	Unavailabl
KEYAPLEX-KEYAPLEX-SA	AM2	APL	KEYC	SoftDown	Unavailabl
KEYAPLEX-KEYAPLEX-SA	AM2	APL	KEYB	SoftDown	Unavailabl
KEYAPLEX-KEYAPLEX-SA	APPC	APL	KEYB	Available	Available
KEYAPLEX-KEYAPLEX-SA	APPC	APL	KEYA	Available	Available
KEYAPLEX-KEYAPLEX-SA	APPC	APL	KEYC	Available	Available
KEYAPLEX-KEYAPLEX-SA	ASCH	APL	KEYA	Available	Available
KEYAPLEX-KEYAPLEX-SA	ASCH	APL	KEYC	Available	Available
KEYAPLEX-KEYAPLEX-SA	ASCH	APL	KEYB	Available	Available
KEYAPLEX-KEYAPLEX-SA	BASE_SYS	APO	KEYC	Available	Available
KEYAPLEX-KEYAPLEX-SA	BASE_SYS	APO	KEYA	Available	Available
KEYAPLEX-KEYAPLEX-SA	BASE_SYS	APO	KEYB	Available	Available
KEYAPLEX-KEYAPLEX-SA	BASE_USS	APO	KEYA	Available	Available
KEYAPLEX-KEYAPLEX-SA	BASE_USS	APO	KEYC	Available	Available
KEYAPLEX-KEYAPLEX-SA	BASE_USS	APO	KEYB	Available	Available
KEYAPLEX-KEYAPLEX-SA	CANUDO	APL	KEYA	Available	Available
KEYAPLEX-KEYAPLEX-SA	CICS	APO		Available	Available
KEYAPLEX-KEYAPLEX-SA	CICS1	APO	KEYA	Available	Available
KEYAPLEX-KEYAPLEX-SA	CICS1R1	APL	KEYA	Available	Available

# Customer Requirements

# Staged IPL - RunModes

- Enables the starting or stopping of a system in stages
  - Each resource has one or more RunTokens assigned
  - A RunMode is a set of RunTokens
- RunMode requests
  - Are special STOP requests against the system resource (SYG)
  - Can be persistent or removed when system leaves the sysplex
  - Are replaced by next runmode request
- Enables to switch between setups
  - Example: Day vs Night shift -or- weekday vs weekend



Setting a runmode feels the same as placing normal STOP requests against all resources that are not qualified



# Staged IPL – RunModes... (2)



- INGRUN Command
  - Sets a RunMode
  - Qualifies / disqualifies a resource

```
INGKYRM0 SA z/OS - Command Dialogs
Domain ID = IPXFG ----- INGRUN ----- Date = 05/17/11
Operator ID = UDO Time = 17:30:22

Request => _____ Request type (SET, ADD or DEL)
Target => _____ System name, domain ID or sysplex name

--- Parameters for SET request -----
System => _____ System name
Runmode => _____ Runmode name (mode or ?)
Persistent => _____ Keep request across IPL (YES/NO)
Type => _____ Type of processing (NORM/IMMED/FORCE)
Priority => _____ Priority of request (FORCE/HIGH/LOW)
Override => _____ (ALL/NO/TRG/FLG/DPY/STS/UOW/INIT)
Verify => _____ Check affected resources (YES/NO/WTOR)
Comment => _____

--- Parameters for ADD or DEL requests -----
Resource => _____ format: name/type/system

Command ==> _____
PF1=Help PF2=End PF3=Return PF6=Roll
PF12=Retrieve
```

# Eliminating Pain Points...

- Removal of deleted policy Objects from run-time data structures at config refresh time
  - Timers, GDPS UET members, etc
  - INGCLEAN command
- Class inheritance shown for the Minor Resource Thresholds and Automation flags policy with APL

Cmd	Minor Resource Name	Thres	- Automation Flags -					
			A	I	S	R	T	RS
___	<u>MINRES-CLASS-LEVEL2</u>	*	*		*			*
___	MINRES-PARTIALLY-INHERITED1	*		*			*	
___	MINRES-PARTIALLY-INHERITED2	*		*	*			*
___	MINRES-LOCAL	*	*		*			*
___	MINRES-WITHOUT-DATA							

- Flat File Policy Update
  - Enables Creation/Update of System policy
  - 18 – Enables Creation/Update of Group policy

## Eliminating Pain Points ... (2)

- AT Syntax Check done for each Override being edited
  - Syntax check performed when panel is left with END / PF3
  - Local NetView required + command receiver infrastructure
  - Each syntax check execution is recorded in the Netlog with message ING335I
  - Checking can be disabled via Customization Dialog settings

### AT Syntax Check Result

```
CNM507E PARAMETER VALUE 'PAD /%/ F...' SPECIFIED FOR "ACQUIRE" FUNCTION IS  
INVALID
```

```
DSI417I #0000003 : IF MSGID = 'HASP050' & TOKEN(6) = 'BUFX' & ACQUIRE('PAD  
/%/ FINDLINE /-/ SKIPTO /-/ W 2:1 STRIPR 1') < '100' THEN
```

```
EXEC(CMD('PVTWARN1') ROUTE(ONE * AUTGSS AUTSYS AUTOBASE AUTO1));
```

```
DW0366E NUMERIC VALUE 2:1 IS NOT VALID. IT IS NOT WITHIN THE RANGE  
REQUIRED BY THE COMMAND OR KEYWORD ON WHICH IT IS SPECIFIED.
```

```
DW0525I TEST OF NETVIEW AUTOMATION FILE WAS UNSUCCESSFUL
```

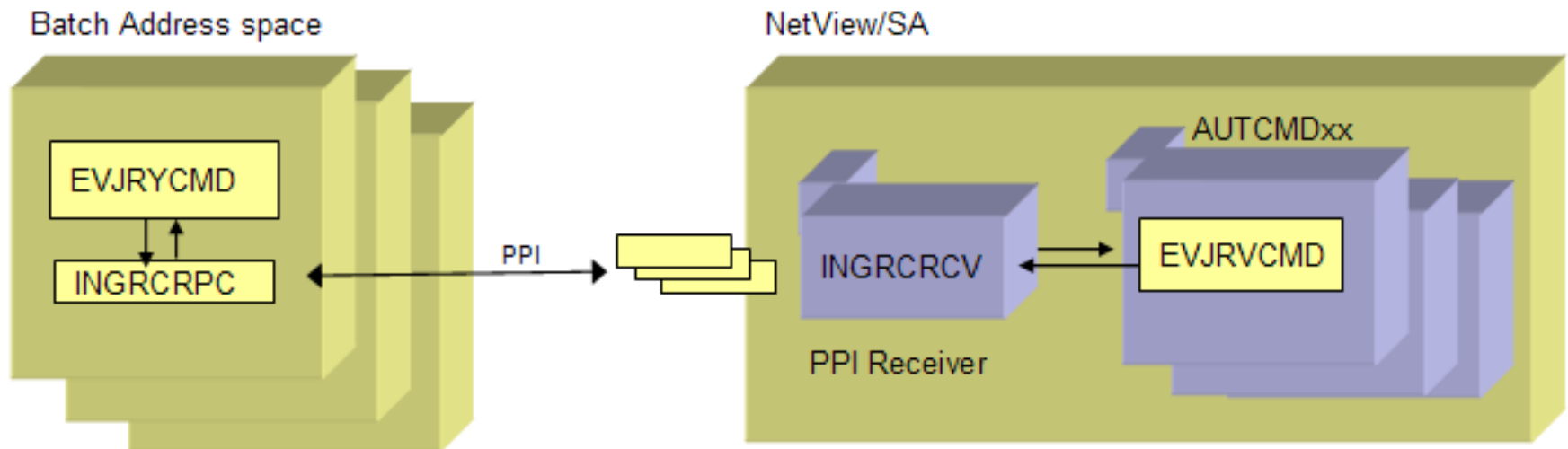
```
Press ENTER to keep override as is.
```

```
Press END or CANCEL to continue editing.
```

# Batch Command Receiver – Parallel execution

- Processing no longer tied to TWS workstation (optionally)
- Eliminates deficiency that only one command can be processed at a time
  - New support allows concurrent processing of commands originated from multiple jobs
  - Triggered by SERVER=\* parameter

Prereqs TSO REXX function package -> INGTXFPG





## Batch Command Receiver... (2)

- Invocation

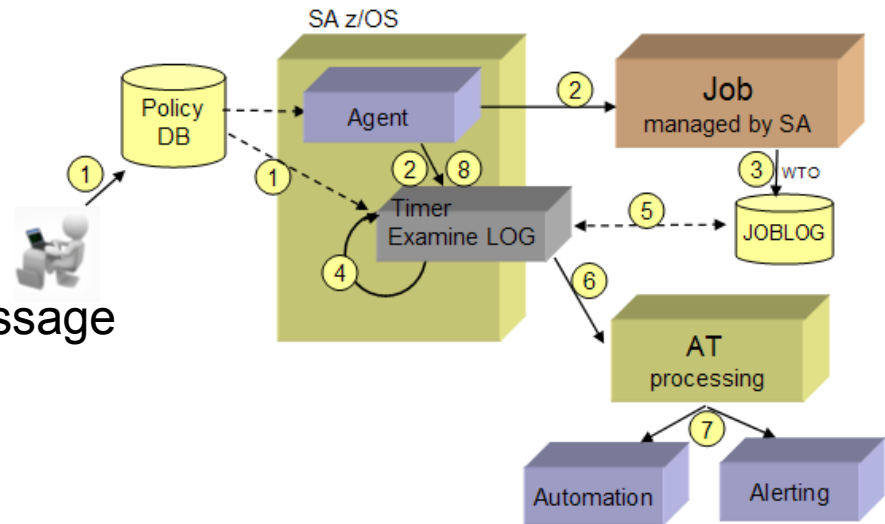
```
EVJRYCMD  SERVER=*  -----  ...  ----->
```

- Requires General Purpose Command Receiver running in SA
  - Receiver task + multiple Command work tasks
- Requires TSO Rexx function package to be installed
  - INGTXFPG

# JobLog Monitoring

# JobLog Monitoring

- Monitors JobLog (JESMSGLOG) and spooled data sets for specific messages that are subject to automation
  - Allows you to catch messages that are not WTOed to system console
  - Designated spool data set and/or JESMSGLOG periodically examined for messages
  - SA keeps track of last examined message in spool data set / JESMSGLOG
  - NetView recycle loses info
- Supports non SA managed Jobs
  - Job Output on Hold queue
- Message definition similar to the CICS/IMS message exit
  - Message id and offset
  - 1 or more tokens acting as filter (optionally)



Multi-line message

```
INGY1300I STCUSER LMS06 STC00626 ESMSGLOG MSG001
14.47.26 STC00626 AAZ2401I JLMS06 started - but delayed for 5 seconds.
```

# JobLog Monitoring...

- Generates message INGY1300I for each message that qualifies the filter
- Support non SA z/OS managed jobs via INGJLM command
  - but under installation control
- INGJLM syntax:

```

>>--INGJLM--.-START--| dsname |----INTERVAL=SSS-----><
      |-----STATUS-----|
      |-----STOP--| dsname |-----|
      |-----SUSPEND-----|

dsname:
|-----JOBNM=jnm-----|----->
  '-OWNER=uid-'          '-JOBID=jid-' |
                               '-DDN=' |
                               |
                               |-----JESMSG LG-----|
                               |-----ddname-----|

```

# INGJLM Status command

```

Status of task INGTJLM: ACTIVE
Owner      Jobname    Jobid      DDname     Status     Freq. Last      Read  Passed
-----
STCUSER    JLMS05    STC01456  AAAZOUT    ----S--I  0:17    n/a      1     0     0
STCUSER    JLMS05    STC01456  JESMSG LG  -AD-S--   0:17  17:54:03  8     0     0
STCUSER    JLMS07    STC01453  AAAZOUT    -AD-SM--  0:16  17:54:09  7     4     4
*** Status complete ***
  
```

Annotations in the original image:  
 - A yellow box highlights the first row of data.  
 - A yellow box highlights the 'M' in the status of the third row.  
 - A yellow box highlights the '2' in the 'Passed' column of the third row.  
 - A yellow box highlights the '1' in the 'Read' column of the first row.  
 - A yellow box highlights the '4' in the 'Passed' column of the third row.  
 - A yellow box highlights the '4' in the 'Passed' column of the third row.  
 - A yellow box highlights the '1' in the 'Passed' column of the third row.  
 - A yellow box highlights the '2' in the 'Passed' column of the third row.  
 - A yellow box highlights the '1' in the 'Passed' column of the third row.

## Notes:

- (1) Application has not yet opened the data set
- (2) All messages are passed to the automation table
- (3) # of messages processed since last interval

# Customization Dialog

- Application Information Panel

Scheduling Subsystem . . . _____	(MSTR, JES Subsystem)
JCL Procedure Name . . . . . _____	
Captured Messages Limit. . . ____	(0 to 999)
Job Log Monitoring . . . . . ____	(00:01 to 01:00 polling time interval)

- Message Processing panel

Cmd	Message id	Description	Cmd	Rep	Cod	Usr	A	M
u__	JOBLOGALL	Automate all JESMSGLG messages					*	*
u__	cccnnna	Automate this JESMSGLG message					*	*

- User Data Processing panel

All messages are passed to automation

Cmd	Keyword	Data
___	JLM_OFFSET	n
___	jlm_token	(4, 'KEY*')
___	jlm_token	(2, '3')
___	JLM_DDNAME	SYSPRINT
___	JLM_DDNAME	AAAZOUT



# Command Enhancements

# INGDATA Command

- Additional filter criteria introduced – similar to INGLIST
  - Eg: OBSERVED, DESIRED, COMPOUND, ....
- More info returned

Offset	Length	Contents
237	8	Jobname
246	40	Inform list
287	3	Runmode qualification
291	8	Desired default status

# INGGROUP Command Enhancements

- New parameter CHUNK introduced enabling to recycle more than 1 group member at a time.
- Provides significant performance improvements
- Syntax:

```
INGGROUP groupname ACTION=RECYCLE CHUNK=nn
```

# INGLIST Command Enhancements

- Shows the Job name of the resource (where applicable)
- Job name and Description of resource can be used as additional filter criteria.
- Extended wildcard + mixed case

```

INGKYFLT                               SA z/OS - Command Dialogs
Domain ID = IPUN8                       ----- INGFLT -----      Date = 07/20/11
Operator ID = WAS                        Time = 16:06:11

Resources...                            format: name/type/system or *am*/*/*
*
-----
Observed status ==> *
Desired status ==> *
Automation status ==> *
Compound status ==> *
Health status ==> *
Automation flag ==> _____ Yes or No
Resource category ==> *
Resource subtype ==> *
Group type ==> *
Job name(s) ==> *
Description ==> *
RunToken(s) ==> *

A0F710A VERIFY/REVISE INPUT AND THEN PRESS ENTER
Command ==>
PF1=Help   PF2=End   PF3=Return   PF4=Clear   PF5=Reset   PF6=Roll
PF9=Save   PF12=Retrieve
  
```

# DISPGW Command Enhancements

- Provides additional information about the remote system
  - Primary & backup focal point names
  - System name
  - SA plexname
  - XCF group name
  - SMF Id
  - Net Id
  - Physical sysplex name

Uses the entire screen for the display

```

AOFK2GL          SA z/OS - Command Dialogs          Line 1 of 32
Domain ID = IPXFG          DISPGW          Date = 02/05/11
Operator ID = WAS          System = KEYA          Time = 19:30:01
                               Focal Point = IPUF9
-----
Domain  SDF Root Status      Comm  Release Level  In/Outbound Status  Last out/in  System  SMF ID  SA Plexname  XCF Group  Net Id
-----
IPSF1  KEY6  INACTIVE          SA z/OS 3.4  INACTIVE  NOT STARTD  CONNECT  CHECK
IPSF2  KEY6  INACTIVE          SA z/OS 3.4  INACTIVE  NOT STARTD  NOT STARTD
IPSF3  KEY6  INACTIVE          SA z/OS 3.4  INACTIVE  NOT STARTD  NOT STARTD
IPSF4  KEY3  ACTIVE            *IP * SA z/OS 3.2  ACTIVE  ACTIVE  CHECK  CHECK  KEY3  KEY3  KEY3PLEX  INGXSQA3  DEIBMIPS
IPSF5  KEY4  ACTIVE            *IP * SA z/OS 3.4  ACTIVE  ACTIVE  CHECK  CHECK  KEY4  KEY4  KEY4PLEX  INGXSQA3  DEIBMIPS
IPSF6  KEY4  ACTIVE            *IP * SA z/OS 3.4  ACTIVE  ACTIVE  CHECK  CHECK  KEY4  KEY4  KEY4PLEX  INGXSQA3  DEIBMIPS
IPSF7  KEY4  INACTIVE          SA z/OS 3.4  INACTIVE  NOT STARTD  NOT STARTD
IPUFA  AOCA  ACTIVE            *IP * SA z/OS 3.4  ACTIVE  ACTIVE  CHECK  CHECK  AOCA  AOCA  AOCAPLEX  INGXSQA0  DEIBMIPS
  
```

```

AOFK2GL          SA z/OS - Command Dialogs          Line 1 of 32
Domain ID = IPXFG          DISPGW          Date = 02/05/11
Operator ID = WAS          System = KEYA          Time = 19:31:26
                               Focal Point = IPUF9
-----
Domain  SYSPLEX  PrimaryFP  BackupFP  Description
-----
IPSF1  KEY6
IPSF2  KEY1
IPSF3  KEY2
IPSF4  KEY1PLEX  IPUFD  IPSF4  KEY3
IPSF5  KEY1PLEX  IPUFD  IPSF5  KEY4 backup focalpoint
IPSF6  KEY7
IPUFA  AOCAPLEX  IPUFD  IPSF6  AOCA
  
```

# Extended Wildcard Support

- INGRCLUP command allows wildcards for the job name

```
>>--INGRCLUP---jobname--.-----.'--type--' '--command--'-----><
```

- INGVOTE command allows wildcards for the user id and Source filter parameter

```
>>--INGVOTE--.-----.'-resource-' '-SOURCE=name-' '-USER=name-'-----><
```

- DISPSTAT command allows wildcards for the subsystem name
- Extended wildcards support
  - \* for text string of any length
  - % for one character





# INGIMS Command Enhancements

- Shows the IMS dependent regions or TCO settings
  - Including linemode

```
>>--INGIMS---| Resource specification |--REQ=--.-DEP-.------ ... ----->
                                     '-TCO-'
>-----><
'-OUTDSN=dsname-' '-OUTMODE=--.-LINE---.--'
                                     |'-AUTO---|
                                     '-NETLOG-'
```

```

EVIKYCMD          SA z/OS - Command Dialogs          Line
Domain ID      = IPXFG      ----- INGIMS -----   Date = 03/08/11
Operator ID    = WAS                               Time = 19:45:11

Resource       => IMS1CTL/APL/KEYA          -or-  IMSplex name => _____
IMS Members   => _____
System        => _____      System name, domain ID or sysplex name
Request       => dep_                CMD or XCMD, INFO or XINFO, BROADCAST, DEP, TCO
IMS Command   => _____
Response      => _____      Yes/No          Command wait time => _____ (seconds)
IMS Route     => _____
IMS Message   => _____

```

# INGEXEC Command Enhancements

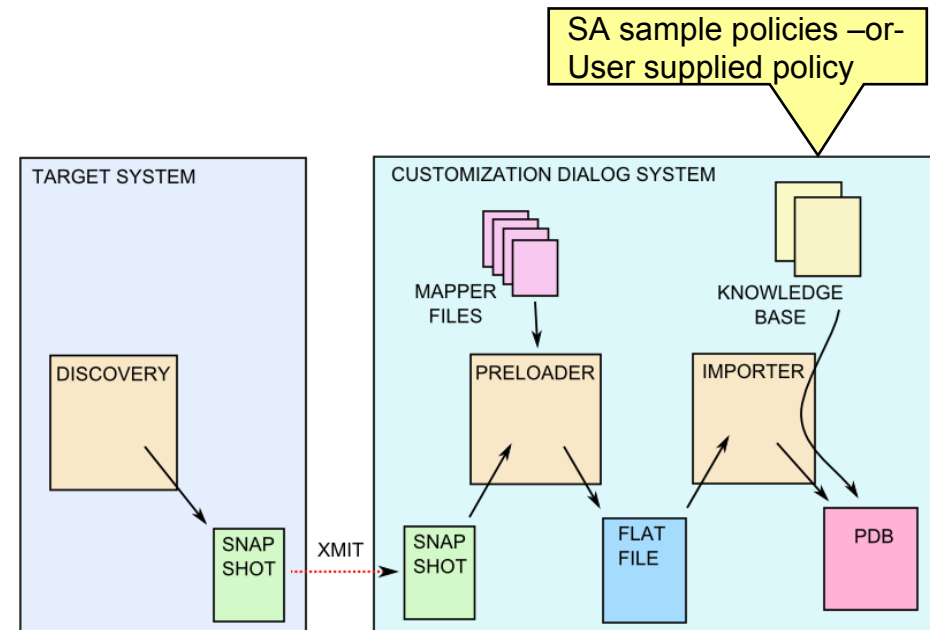
- New parameter DESCR introduced to allow filtering based on the description of the resource
- New parameter CORRWAIT and TERMMSG introduced to handle execution of MVS commands taking longer than 1 second
- New parameter TIMEOUT introduced to control the max wait time when going to remote system



# Auto Discovery

# Auto Discovery - Overview

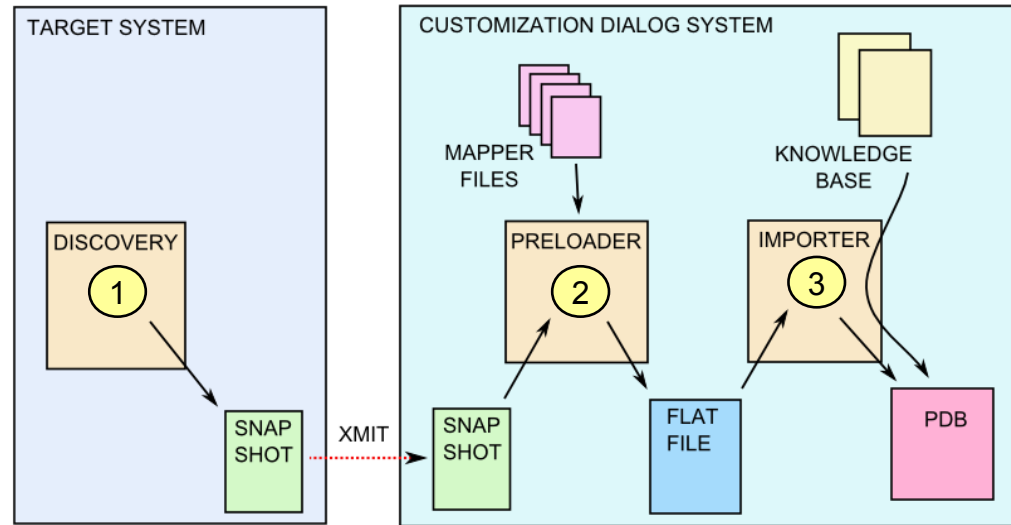
- Simplifies & accelerates the PDB creation using accurate models
- Gathers data about a customer system environment
  - All address spaces incl USS processes
  - XCF Groups & ARM Groups
- Generates PDB leveraging SA's best practice policies
  - Allows manual adjustments
  - Allows refine + extend the model process
- Distinction between
  - Initial Load
  - Re-Discovery





# Auto Discovery – Overview... (2)

- Consists of 3 phases
  1. Discovery
  2. Preloader
  3. Importer
  
- Discovery engine must run on target system
  - Runs as batch Job
  - No need to setup NetView/SA
  
- Preloader correlates discovered data with SA's and/or Installation's sample policy
  - Allows you to supplement / replace them with your own policy models
  - Produces a report of discovered data



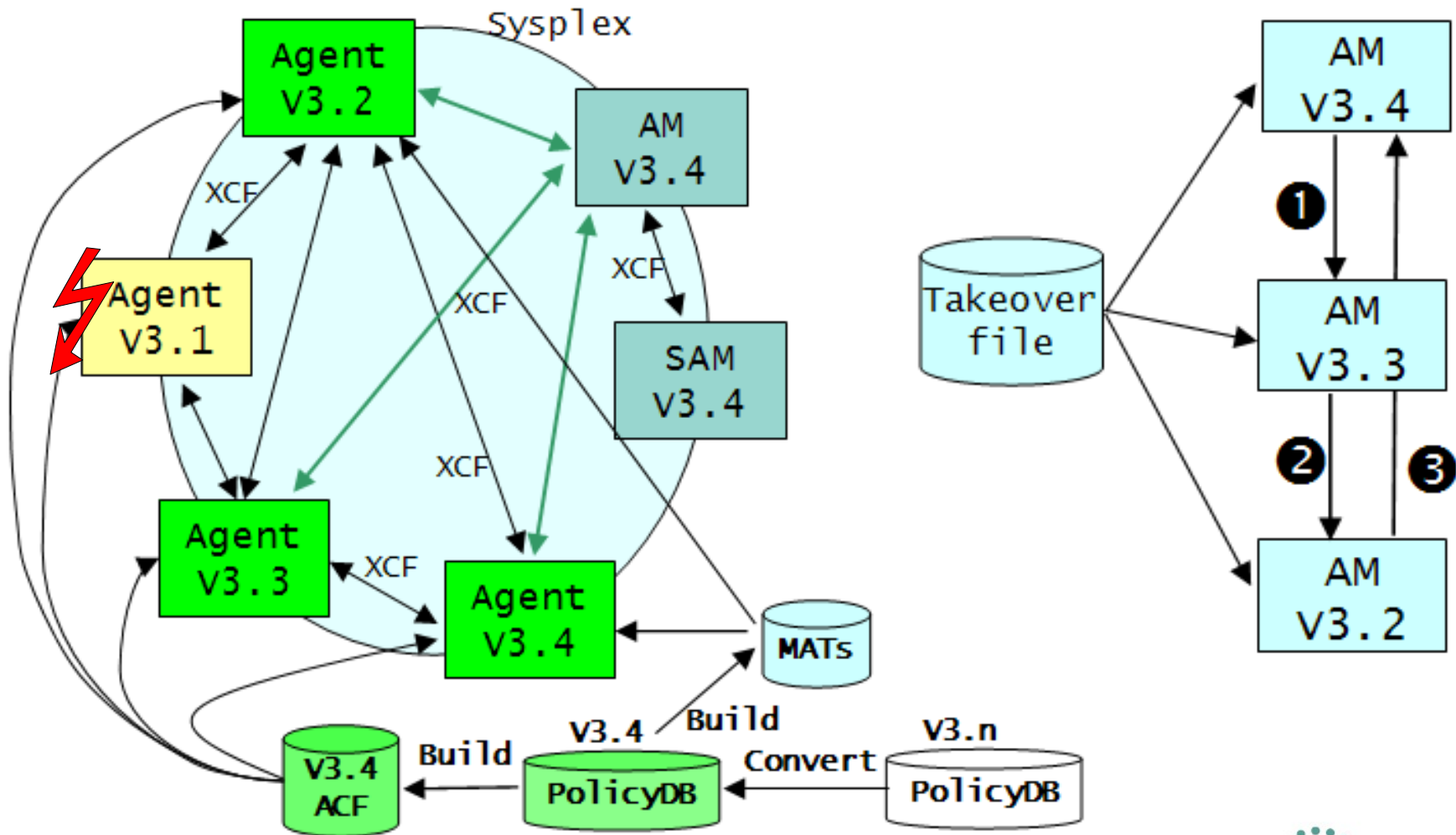
# Auto Discovery - Report

```
Address space:          - AMX8          - 0040
  Id       : SA_AM
  Proc    : AMPROC      Step   : AMX8
  Prog    : HSAPINIT    Parms  : MEMBER=GF , START=WARM , DELAY=0 , PROMPT=NO
  Subsys  :              Assoc :
  User    :              Type  : S
  Prefix  :              Job px:
  Primary:              Sched  : MSTR
  ARM Ele: HSAAM_AOC8$$$$1
  ARM Grp: DEFAULT
  ARM Lvl: 2            Local  : 1
  USS Data: 16777251    <- 1
  Jobname: AMX8        User   : STCUSER
  Command: HSAPYTCP
  :
  :
Address space: STC01857 - SSHD          006A
  Id       : USS_SSHD_LAUNCHER
  Proc    : *OMVSEX     Step   : SSHD
  Prog    :              Parms  :
  Subsys  :              Assoc :
  User    : OMVSKERN    Type  : S
  Prefix  :              Job px: S
  Primary:              Sched  :
  USS Data: 67108878    <- 1
  Jobname: SSHD        User   : OMVSKERN
  Command: /bin/sh -c c=$(find /usr/sbin -name sshd);${c:-/local/sbin/sshd} -D
```

Object ID assigned by Discovery engine

# Co-existence

# Co-existence....





# Questions

Thank you very much for your attention

## Visit our home pages at

IBM Tivoli System Automation for z/OS:

<http://www-01.ibm.com/software/tivoli/products/system-automation-zos/index.html>  
<http://www-03.ibm.com/servers/eserver/zseries/software/sa/>

IBM Tivoli System Automation for Multiplatforms:

<http://www-01.ibm.com/software/tivoli/products/sys-auto-multi/>

IBM Tivoli System Automation Application Manager:

<http://www-01.ibm.com/software/tivoli/products/sys-auto-app-mgr/>

## our Community at

IBM Service Management Connect

<https://www.ibm.com/developerworks/servicemanagement/z/index.html>

## or our User forums at

<http://groups.yahoo.com/group/SAUSERS/>

*The purpose of this group is to discuss technical issues related to **IBM Tivoli System Automation for z/OS** with your peers.*

# Tivoli System z Session at SHARE



## Monday

- 11:00 11207: Automating your IMSplex with System Automation for z/OS Platinum 7
- 1:30 11832: What's New with Tivoli System Automation for z/OS Elite 1
- 3:00 11886: Improve Service Levels with Enhanced Data Analysis Elite 1

## Tuesday

- 9:30 11792: What's New with System z Monitoring with OMEGAMON Elite 1
- 11:00 11791: Tuning Tips To Lower Costs with OMEGAMON Monitoring Platinum 8
- 1:30 11900: Understanding Impact of Network on z/OS Performance Grand Salon A

## Wednesday

- 9:30 11835: Automated Shutdowns using either SA for z/OS or GDPS Elite 1
- 1:30 11479: Predictive Analytics and IT Service Management Grand Salon E/F
- 1:30 11899: Top 10 Tips for Network Perf. Monitoring w/ OMEGAMON Platinum 9
- 4:30 11836: Save z/OS Software License Costs with TADz Elite 1

## Thursday

- 9:30 11905: Using NetView for z/OS for Enterprise-Wide Mgmt and Auto Grand Salon A
- 11:00 11909: Get up and running with NetView IP Management Grand Salon A
- 11:00 11887: Learn How To Implement Cloud on System z Grand Salon E/F

## Friday

- 9:30 11630: Getting Started with URM APIs for Monitoring & Discovery Elite 1



धन्यवाद  
Hindi

多謝  
Traditional Chinese

ขอบพระคุณ  
Thai

Спасибо  
Russian

Gracias  
Spanish

شكراً  
Arabic

*Thank You*  
English

Obrigado  
Brazilian Portuguese

Grazie  
Italian

多谢  
Simplified Chinese

Danke  
German

Merci  
French

நன்றி  
Tamil

ありがとうございました  
Japanese

감사합니다  
Korean