zEnterprise Automation with IBM System Automation for z/OS V3.5

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IBM

Session 17031

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Agenda

- Overview
- Integration with Omegamon
  - Immediate Message Reporting on TEP
  - Looping Address Space Suppression
- IPL complete notification
- Manage bulk starts / stops using Pacing Gates
- Configuration Assistant
- SAF support
- Extended XCF communication
- Configuration Refresh Indicator

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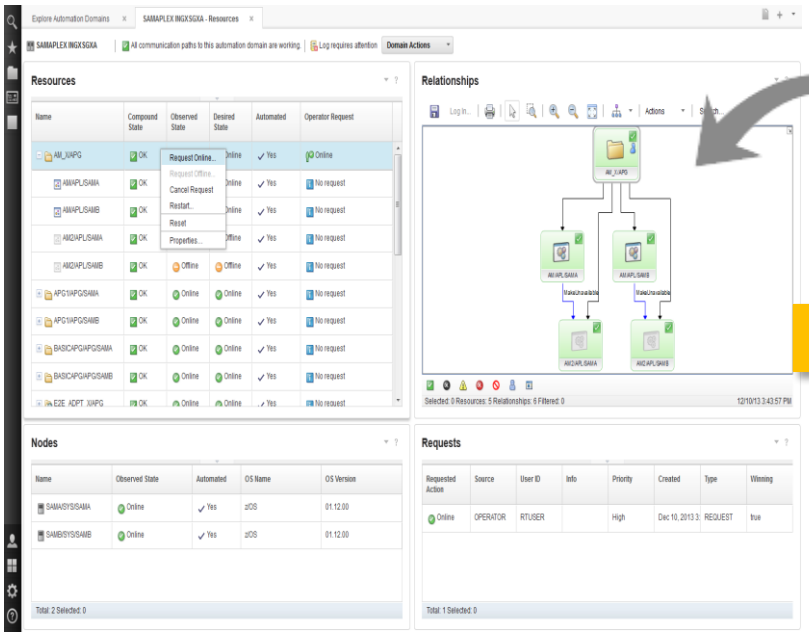
IBM System Automation family

IBM only vendor to provide end-to-end, cross-platform Automation



System Automation Application Manager V4.1

Adapter for
- IBM PowerHA
- VCS
- MSCS
- Unclustered nodes

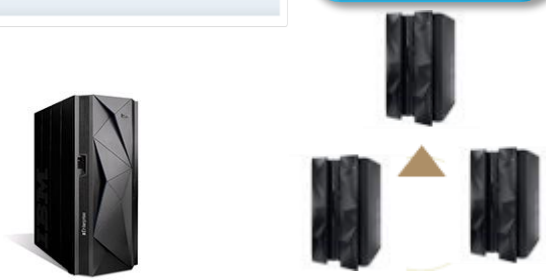
GDPS DCM

GDPS

System Automation for z/OS V3.5

System Automation for Multiplatforms V4.1

GDPS xDR
GDPS Virtual Appliance



z/OS

Linux, AIX, Windows

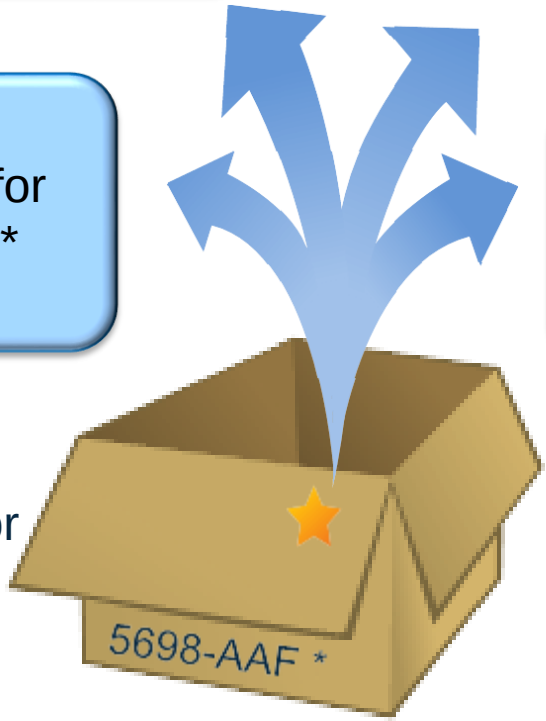
IBM Service Management Suite for z/OS V1.2

IBM System Automation for z/OS V3.5

IBM OMEGAMON Performance Management Suite for z/OS V5.3 **

IBM NetView for z/OS V6.2.1 *

IBM Asset Discovery for z/OS V8.1



* OTC

trade up considerations for any component products already owned

**

IBM Tivoli OMEGAMON Dashboard Edition on z/OS V5.3.0 (new)
IBM Tivoli OMEGAMON XE on z/OS V5.3.0 (new)
IBM Tivoli OMEGAMON XE for Mainframe Networks V5.1.1
IBM Tivoli OMEGAMON XE for Storage on z/OS V5.3.0 (new)
IBM Tivoli OMEGAMON XE for CICS on z/OS V5.3.0 (new)
IBM Tivoli OMEGAMON XE for DB2 Performance Expert on z/OS V5.2.0
IBM Tivoli OMEGAMON XE for IMS on z/OS V5.1.0
IBM Tivoli OMEGAMON XE for Messaging for z/OS V7.3.0
IBM Tivoli Composite Application Manager for Web Resources V7.1.0

IBM Service Management Suite for z/OS V1.2

Improving personnel interaction for better synergy and efficiency

Reducing meantime to correction of complex problems

Consolidating views that can allow for quick assessment for the health of your business environment

Providing management capabilities through automation and monitoring integration for business continuity

Easily and more intuitively install and customize various components

Customizable Dashboards for SMSz V.Next announced - Looking for Beta participants Link

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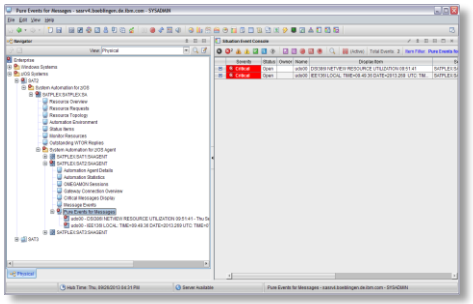
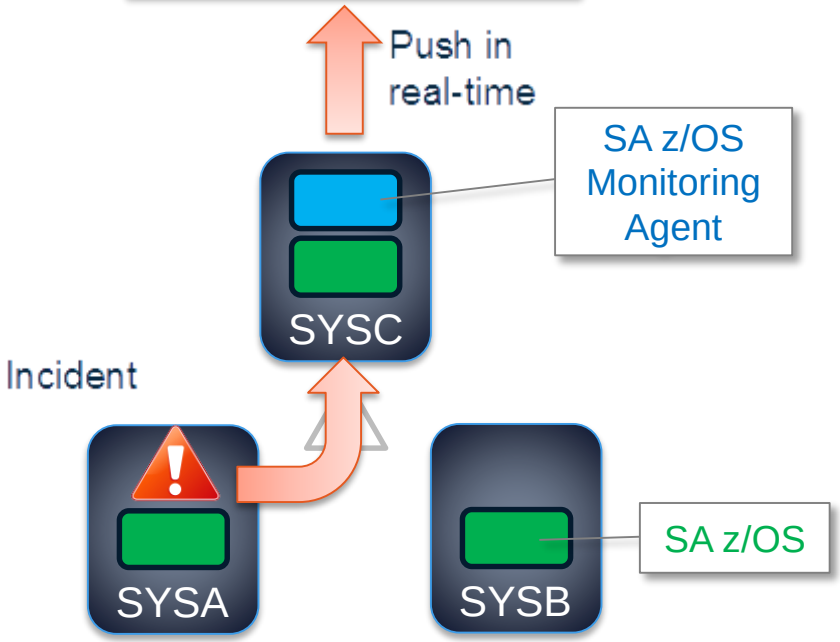
Immediate Message Reporting on TEP





Short-lived incidents may remain undetected by situation sampling routines and hence are invisible to the operations team

- SA z/OS exploits ITM pure event situations
- In combination with its Monitoring Agent, SA z/OS allows to send selected exceptional messages immediately to TEP by means of **policy**

Immediate Message Reporting on TEP

SA 3.4: OA43571

SETUP

TEP

- Download new System Automation application support CD (Link to ITM support) and install on all ITM components
- Define, deploy and activate situations for the new Message Events attribute group

SA z/OS

- Install or update SA Monitoring Agent (TEMA) according to Planning and Installation manual
- Have the TEMA in the automation policy with CATEGORY=ITM and SUBCATEGORY=KAHAGENT
- Update configuration to use ITM in the Inform List policy of APLs, MTRs, MVC, or XDF

```
            Application Information

Entry Type : Application
Entry Name : CANSAH

Category . . . . . . . . . ITM

Subcategory  . . . . . . . . KAHAGENT
```

```
            Application Information

Entry Type : Application
Entry Name : LOOPSUPP

Inform List  . . . . . . . SDF ITM
```

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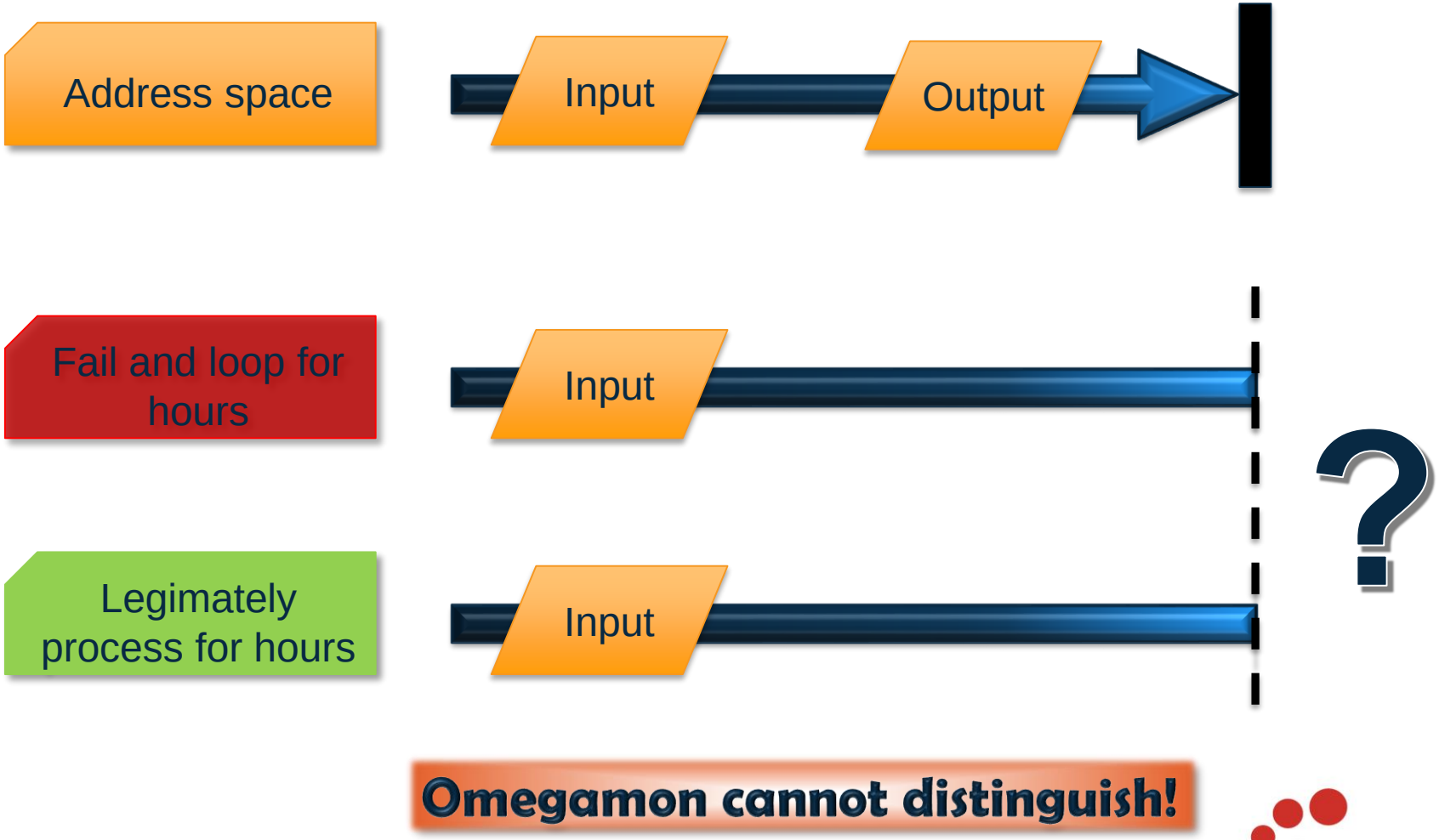
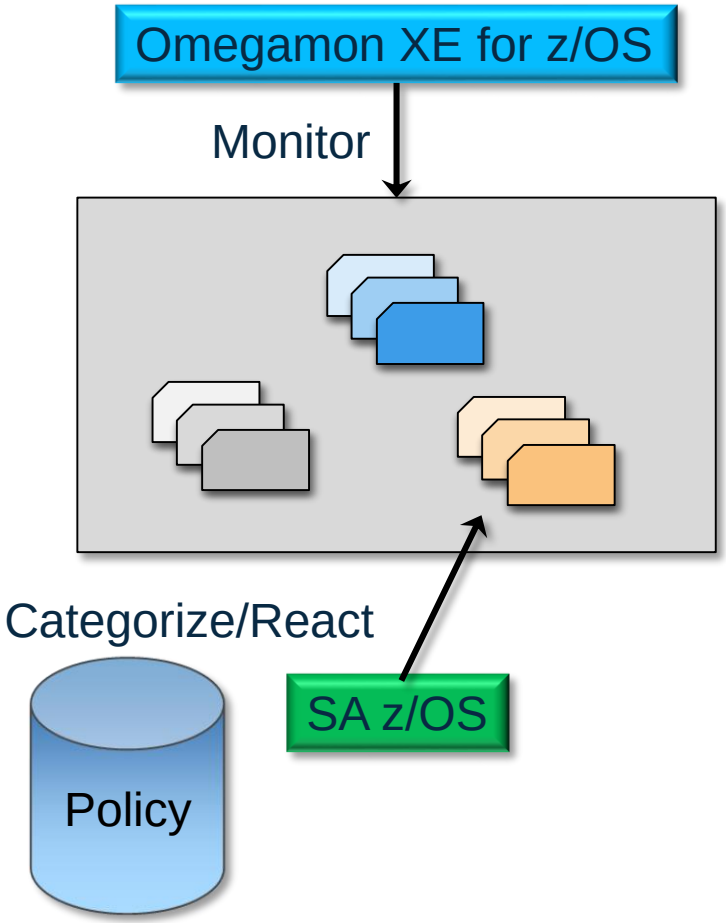
Looping Address Space Suppression



Looping Address Space Suppression

SA 3.4: OA43571
OA44246

Overview



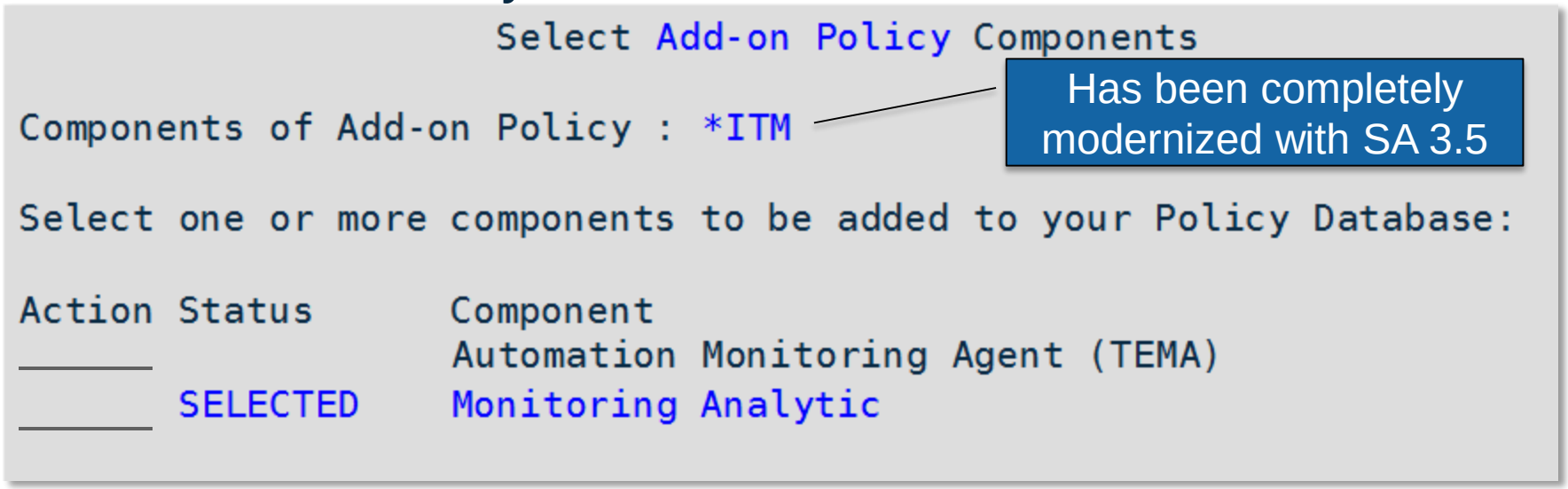
Detect when started tasks / jobs show abnormally high CPU utilization

Prevent that these types of work can dominate the system

SA z/OS can categorize different types of work and allows to define various recovery actions through **policy** – not programming!

Looping Address Space Suppression

Best Practices Policy *ITM

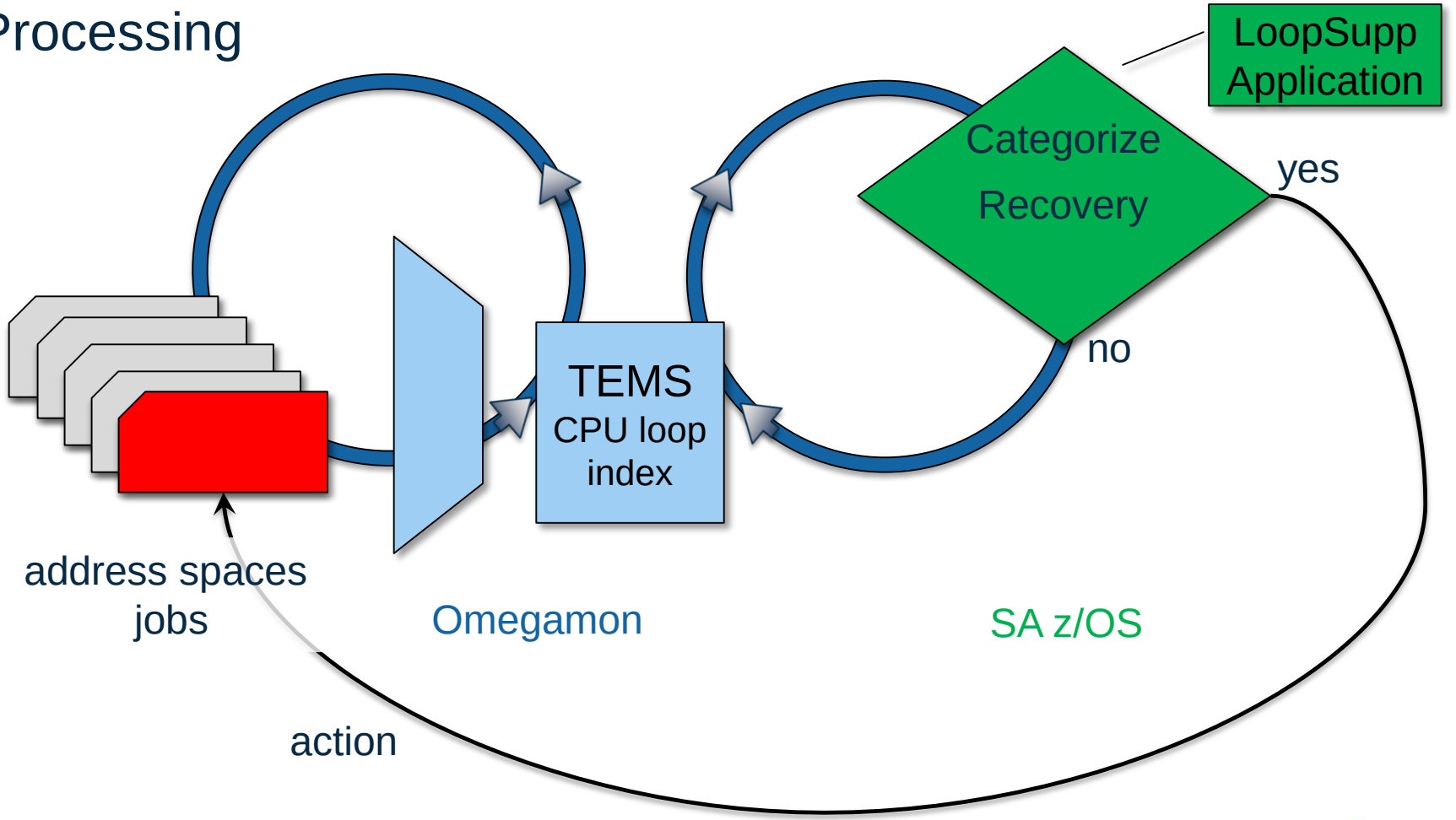


Besides Omegamon

- ING_ANALYTIC APG
- C_LOOPSUPP APL
- LOOPSUPP APL
- SOAP_SERVERS NTW

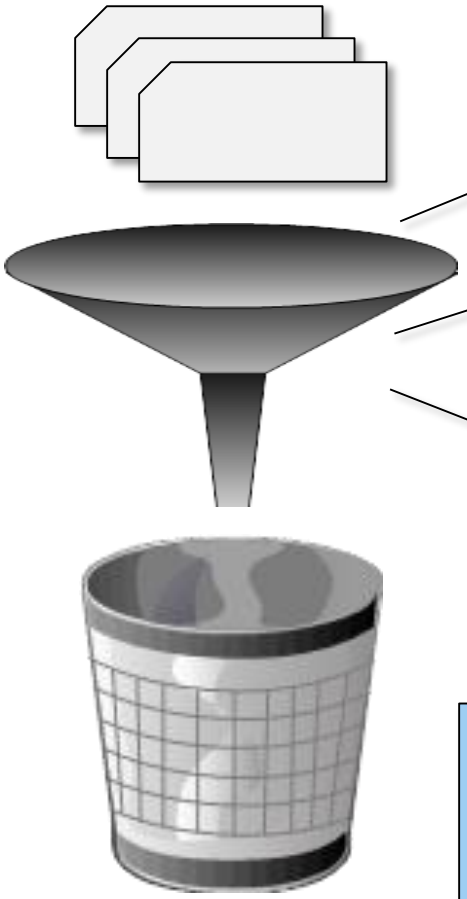
Looping Address Space Suppression

Processing



Looping Address Space Suppression

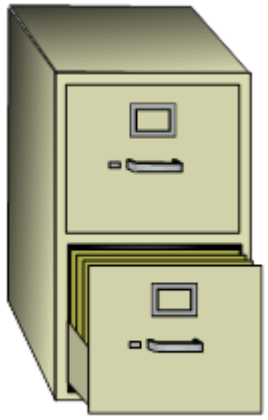
Categorizing



WLM Service Class

Address Space Type
STC / BATCH / TSO
Managed by SA?

Jobname
Stepname



LOOPSUPP APL

MESSAGES/USER DATA
INGCATEGORY → code match

Looping Address Space Suppression

Recovery action example

1. pass issue warning message
2. pass get diagnostic data
3. pass suspend

1. pass issue warning message
2. pass get diagnostic data and cancel

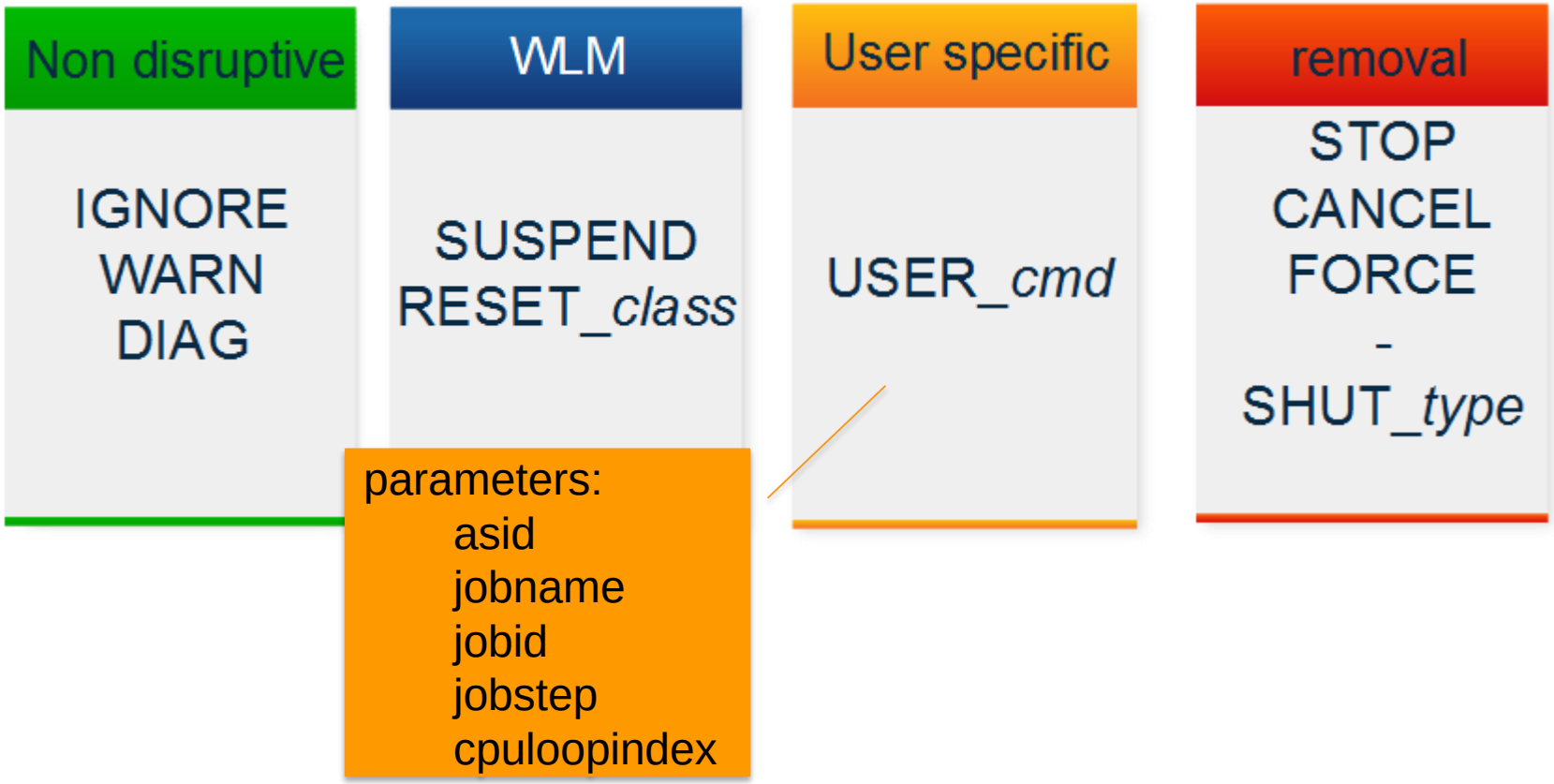
LOOPSUPP APL

MESSAGES/USER DATA

INGRECOVERY → code match

Looping Address Space Suppression

Recovery actions



Looping Address Space Suppression

Example DIAG output

```
ING602I DIAGNOSTICS FOR BUMUSL (ASID 00D8)      Program: EXEC
Messages from Inspect tool:                       TCB  :          @ 008E3390 (100.0 JOB)
KM3IN008I GRANULARITY SET TO 0X00000B40           LMod : IRXINIT  @ 0C467000 (100.0 JOB, 100.0 TCB)
Requested 1000 samples at 5us intervals           CSECT: *-UNKN-* @ 0C467000 (100.0 JOB, 100.0 TCB, 100.0 LMOD)
Took 1000 samples of which 1000 were valid.
                                                          Offset   Percentage
                                                          -------- ----------
                                                         +00000B40       73.3
                                                         +00009240        6.6
                                                         +00000000        5.1
                                                         +00009D80        3.4
                                                         +00006540        3.1
                                                         +000021C0        2.4
                                                         +00007080        2.2
                                                         +00001680        1.7
                                                         +0000A8C0        1.1
                                                         +0000B400        0.7
                                                         +00007BC0        0.1
```

Looping Address Space Suppression

Definition of the SOAP Server

SOAP_SERVERS NTW – **HUBTEMS**

```
Host name. . . . .
hubtems.ibm.com
                                Symbolic host name or IP-address of the SOAP-Server

Port number. . . . 1920         Port number of the SOAP-Server (1-65535)
Protocol . . . . . HTTP         Protocol used for SOAP requests (HTTP or HTTPS)
User ID. . . . . .
                                User ID to log on to SOAP server
Password . . . . .
                                Password of the logon user or SAFPW
Absolute path.
///cms/soap
                                Absolute path of the SOAP-Server on that host
```

SA z/OS 3.5 only; APAR OA46166

SA z/OS 3.4: Need to prime userid and password

NETVASIS INGPW USER SOAP INIT=*userid*
NETVASIS INGPW *userid* SOAP INIT=*password*

USER is a constant, *userid* not

Looping Address Space Suppression

Adjust Monitor to your needs

C_LOOPSUPP APL – **STARTUP** policy

```
            Command Processing : STARTUP

Mixed case . . . NO   (YES NO)

Cmd Type        AutoFn/* Command Text
__  ____________ _______ INGROMLS START &SUBSAPPL HUBTEMS 00:05:00
```

SOAP Server Definition of *ITM

Monitor Interval; defaults to 5 min

CPU_Loop_Index; defaults to 99.0

Looping Address Space Suppression

Control Monitor execution

C_LOOPSUPP APL – **Minor Resources** policy

```
                    Minor Resource Definitions

Entry Type : Application              PolicyDB Name   : SHARE
Entry Name : C_LOOPSUPP               Enterprise Name : SHARE

Line Commands: F (Flg), S (Thr), T (Thr), CN (Class Name)
               I, D (insert or delete lines)

                                                - Automation  Flags -
Cmd Minor Resource Name                 Thres    A   I   S   R   T  RS
___ MONITOR                                                  *
```

```
Cmd  Flag                Auto

___  Automation  (A)     ____
___  Initstart   (I)     ____
___  Start       (S)     ____
___  Recovery    (R)     LOG_
___  Terminate   (T)     ____
___  Restart    (RS)     ____
```

Default;
write recovery actions in netlog, but don't execute them
except nondisruptive ones
Changeable at runtime via INGAUTO

Looping Address Space Suppression

Sample Monitoring report: no looping address spaces

```
ING600I LOOPING ADDRESS SPACE SUPPRESSION REPORT
Called at 7 Jul 2014 17:27:11
Commands will be LOGGED;
LOOPSUPP.MONITOR RECOVERY flag set to LOG
Target Network: HUBTEMS
Monitoring -
   address: 9.152.87.246
      port: 1920
      path: ///cms/soap
  protocol: HTTP
Monitoring threshold: 0300
Query Successful
No exceptions found.
Monitor complete
```

Recovery Flag set to LOG

SOAP Server definition

CPU Loop Index set to 30

Looping Address Space Suppression

Sample Monitoring report: looping address space found

```
Exceptions found -
-------------------------------------------------
ASID: 0079 Type: STC      CPU Loop Index: 64.7
  Job: YBUMUSL  ID: YBUMUSL  Step: BUMUSL0
  WLM Service Class: STCCMD.1
  SA Subsystem: YBUMUSL Type -> STC_SA
  Categorizing
    Searching: LOOPSUPP INGCATEGORY
    CODE1=STCCMD CODE2=STC_SA CODE3=YBUMUSL.BUMUSL0
  => Found category: BUMUPS
  Checking automation flag: LOOPSUPP.BUMUPS.YBUMUSL RECOVERY
  => Recovery Permitted
  Finding recovery actions for pass: 1
    Searching LOOPSUPP INGRECOVERY
    CODE1=BUMUPS CODE2=1 CODE3=<blank>
  => Found: WARN SHUT_FORCE
  Cmd: WARN - Message issued
ING601E LOOPING ADDRESS SPACE DETECTED: YBUMUSL BUMUSL0 (ASID 0079)
  Cmd: SHUT_FORCE - INGREQ YBUMUSL/APL/AOC4
REQ=STOP,TYPE=FORCE,OUTMODE=LINE    Issuing
Monitor complete
```

Started Task which is managed by SA

Policy definition for categorizing

Flag checking

Policy definition for recovery

Performed recovery action

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IPL complete notification

When is an ‘IPL’ complete?

Mark all applications which should be up to consider 'IPL' complete

Do we need a time limit?

Specify a time limit in the policy

IPL complete notification

APL – Application Info policy

```
                          Application Information                 Line 00000001

Entry Type : Application
Entry Name : TCPIP

Category . . . . . .                    (IBM-defined, user-defined or blank,
                                         see help)
Subcategory  . . . . . _____________    (IBM-defined, user-defined or blank,
                                         see help)
Subsystem Name . . . . . TCPIP_______
Job Type . . . . . _____________        (MVS NONMVS TRANSIENT)
Job Name . . . . . TCPIP________________________
Transient Rerun  . . . . . ____         (YES NO)
Scheduling Subsystem . . . _________    (MSTR, JES Subsystem)
JCL Procedure Name . . . . ________________________
Job Log Monitor Interval . ______       (mm:ss NONE)
Captured Messages Limit  . ____         (0 to 999)

Desired Available  . . . . _____________ (ALWAYS ONDEMAND ASIS)
Restart after IPL  . . . . _____________ (START NOSTART NONE)
Monitor for IPL complete . YES          (YES NO)
```

Also available for Application Groups and Monitors

IPL complete notification

SDF – System Defaults

```
                          System Automation Options

Entry Type : System Defaults        PolicyDB Name   : SHARE
Entry Name : SHARE_EXAMPLE          Enterprise Name : SHARE

Captured Messages Limit. . .  ___          (0 to 999)
Exceptional Messages Limit .  ____         (0 to 1020)
Desired Available. . . . . .  _____
Prepare Move . . . . . .      ___          (YES NO)
Move Mode. . . . . . . . . .  ________     (PARALLEL SERIAL)
Inform List. . . . . . . . .  _____________________________
                                           (SDF NMC IOM SMF EIF TTT ITM USR)
IPL Complete Time Limit. . .  ________     (00:00:00 to 24:00:00)
```

If field is left blank – no IPL completeness check

IPL complete notification

SDF – System Defaults

```
                          System Automation Options

Entry Type : System Defaults        PolicyDB Name   : SHARE
Entry Name : SHARE_EXAMPLE          Enterprise Name : SHARE

Captured Messages Limit. . .  ___          (0 to 999)
Exceptional Messages Limit .  ____         (0 to 1020)
Desired Available. . . . . .  ________     (ALWAYS ONDEMAND ASIS)
Prepare Move . . . . . . . .  ___          (YES NO)
Move Mode. . . . . . . . . .  ________     (PARALLEL SERIAL)
Inform List. . . . . . . . .  _____________________________
                                           (SDF NMC IOM SMF EIF TTT ITM USR)
IPL Complete Time Limit. . .  ________     (00:00:00 to 24:00:00)
IPL Complete Status  . . . .  _____________________________
```

Defaults to Available;

Observed Status: AVAILABLE, STANDBY and SOFTDOWN

or

Compound Status: SATISFACTORY

SA 3.5: OA46674

IPL complete notification

ING313I time: IPL completed within expected time period, elapsed time was duration

ING314I time: IPL not completed within limit: limit. Failing resources: resource

ING315I time: IPL completed after expected time period, elapsed time was duration

SA 3.5: OA46426

AOF_AAO_IPL_COMPLETE_MSG=COND | ALWAYS

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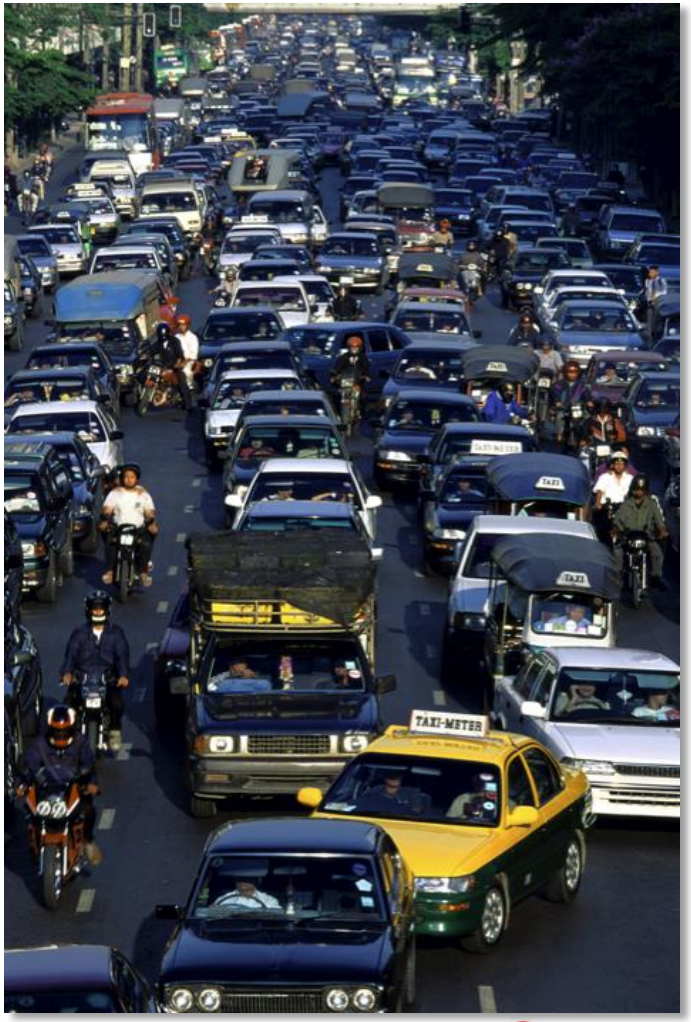
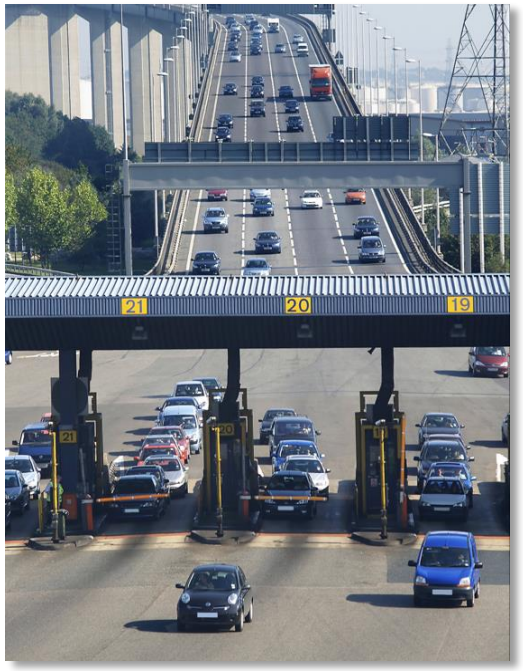
Application Pacing

Problem:

CPU peaks occur
when starting bulk applications e.g. at IPL



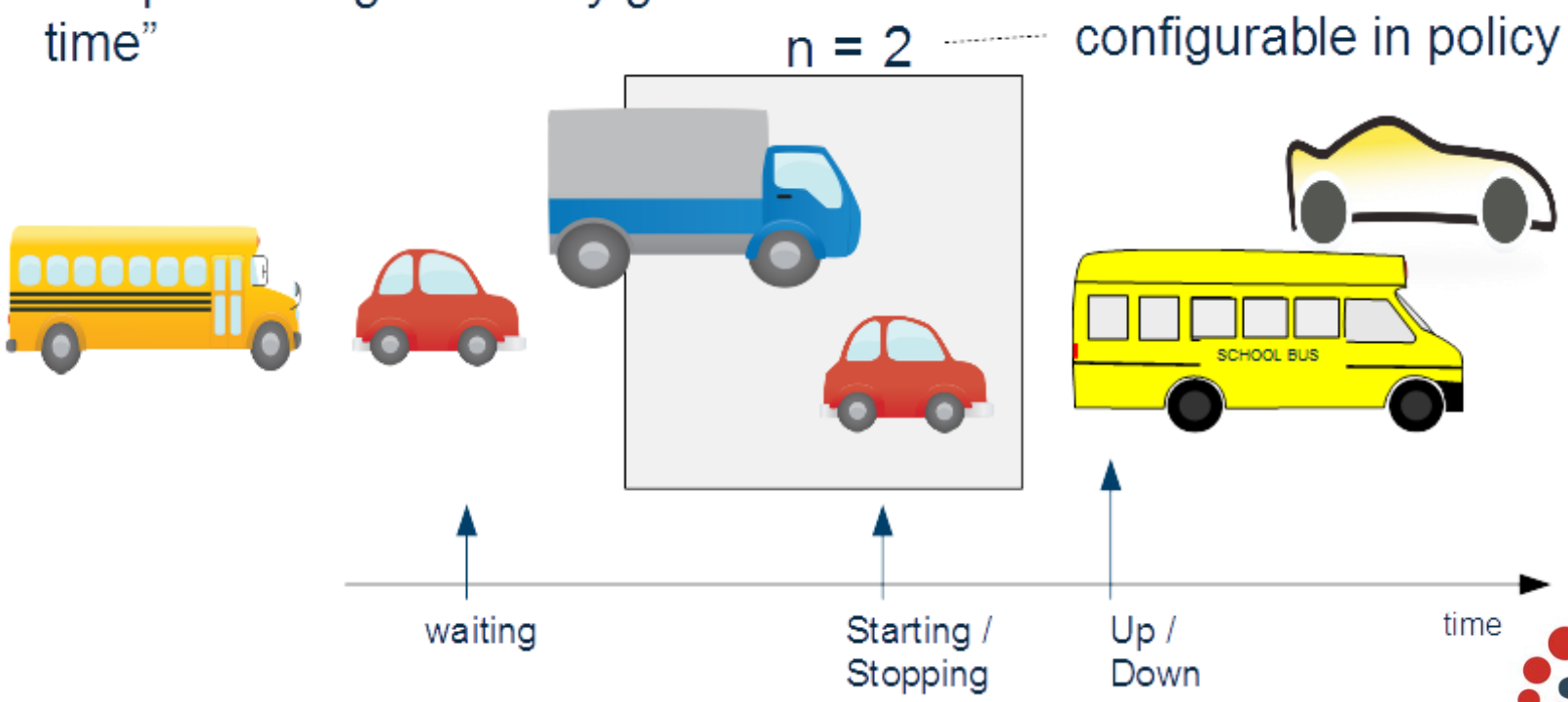
Application Pacing



Application Pacing

Pacing Gate side-view

"Gate mechanism ensures that only up to *n* automation resources can pass the gate at any given time"



Application Pacing

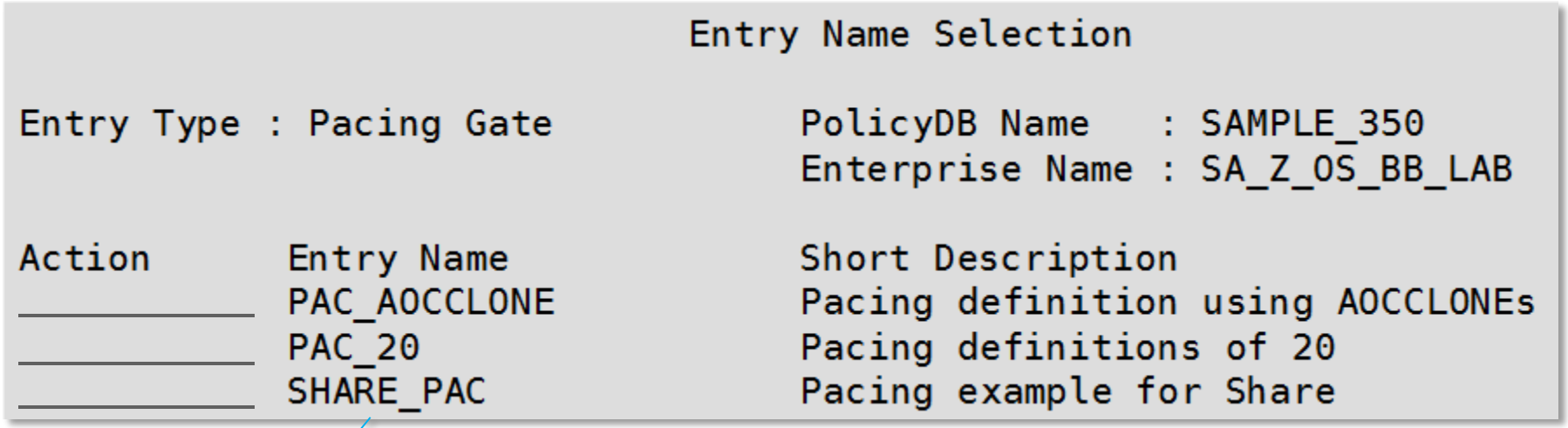
New Entry Type PAC

```
 10 PRO    Processors                    40 XDF    Sysplex Defaults
 11 MTR    Monitor Resources             41 RES    Resident CLISTs
 12 ENS    zEnterprise Ensembles         42 SCR    Status Display
 13 PAC    Pacing Gates

 20 PRD    Product Automation            99 UET    User E-T Pairs
 21 MSG    Messages
```

```
                                  Define New Entry

Define new entry of type Pacing Gate

  Entry name . . . . . . . WAS_PAC

  Start Concurrency Limit  . 10        (0-9999 or NOLIMIT)
  Stop  Concurrency Limit  . 5         (0-9999 or NOLIMIT)

  Short Description  . . . Pacing gate for Websphere Applications
```

Application Pacing

Linkage



Linked through APLs
and not directly to systems

One Application can only be linked to one Pacing Gate

Application Pacing

New Command INGPAC

Average time waiting in sec

# of applications waiting

# of applications waiting or transmitting

```
INGKYPA0                  SA z/OS - Command Dialogs          Line 5      of 20
Domain Id . : IPUFJ   ------------ INGPAC ------------   Date . . : 01/19/15
Operator Id : BUMU            Sys                       Time . . : 12:30:21

CMD: D Details  L List Resources

CMD Pacing Gate          Type  System   Limit    Num Res  Num Wait Cur Wait
--- -------------------- ----- -------- -------- -------- -------- --------
__  PAC_AOCCLONE         Start AOC4          444        0        0        -
__  PAC_AOCCLONE         Start AOC5      NOLIMIT        0        0        -
__  PAC_AOCCLONE         Stop  AOC4          555        0        0        -
__  PAC_AOCCLONE         Stop  AOC5      NOLIMIT        0        0        -
__  PAC_20               Start AOC4           20        0        0        -
__  PAC_20               Start AOC5           20        0        0        -
__  PAC_20               Stop  AOC4           20        0        0        -
__  PAC_20               Stop  AOC5           20        0        0        -
__  SHARE_PAC            Start AOC4            2       16       14       10
__  SHARE_PAC            Start AOC5            2        0        0        -
__  SHARE_PAC            Stop  AOC4      NOLIMIT        0        0        -
__  SHARE_PAC            Stop  AOC5      NOLIMIT        0        0        -
```

Further data available either with scrolling or showing details

Application Pacing

New Command INGPAC - detail

```
INGKYPA1                    SA z/OS    Command Dialogs        Line 1     of 16
                   PUF.                INGPAC    ------------  Date . . : 01/19/15
                   JMU                 x = AOC4PLEX           Time . . : 12:31:23

Pacing gate:   SHARE_PAC                    Type:   Start        System:   AOC4
Description:   Pacing example for Share                          Limit :   2

Wait times (s)        Active times (s)     Number resources
-----------------     ----------------     ------------------
Current:        67    Cur                  Waiting:          14
Average:       381    Ave                  Active:            2
Maximum:       713    Maxi                 Other:             0

CMD:   I Resource Info    R Release

CMD Resource Name              Status    Wait      Active    Total     Req Date
--- ------------------------- --------  --------  --------  --------  --------
___ SHARE#1/APL/AOC4           Starting         0        68        68 01/19/15
___ SHARE#10/APL/AOC4          Starting         0        68        68 01/19/15
___ SHARE#11/APL/AOC4          Waiting         67         0        67 01/19/15
___ SHARE#12/APL/AOC4          Waiting         67         0        67 01/19/15
```

Wait time in front of the gate

Transition time through the gate

Inactivate pacing gate

Applications currently waiting or passing

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Traditional Product Configuration


Chapter 7. Installing SA z/OS on Host Systems

Read the Installation manual ...

- ... decide which of the many installation steps apply to your z/OS environment.

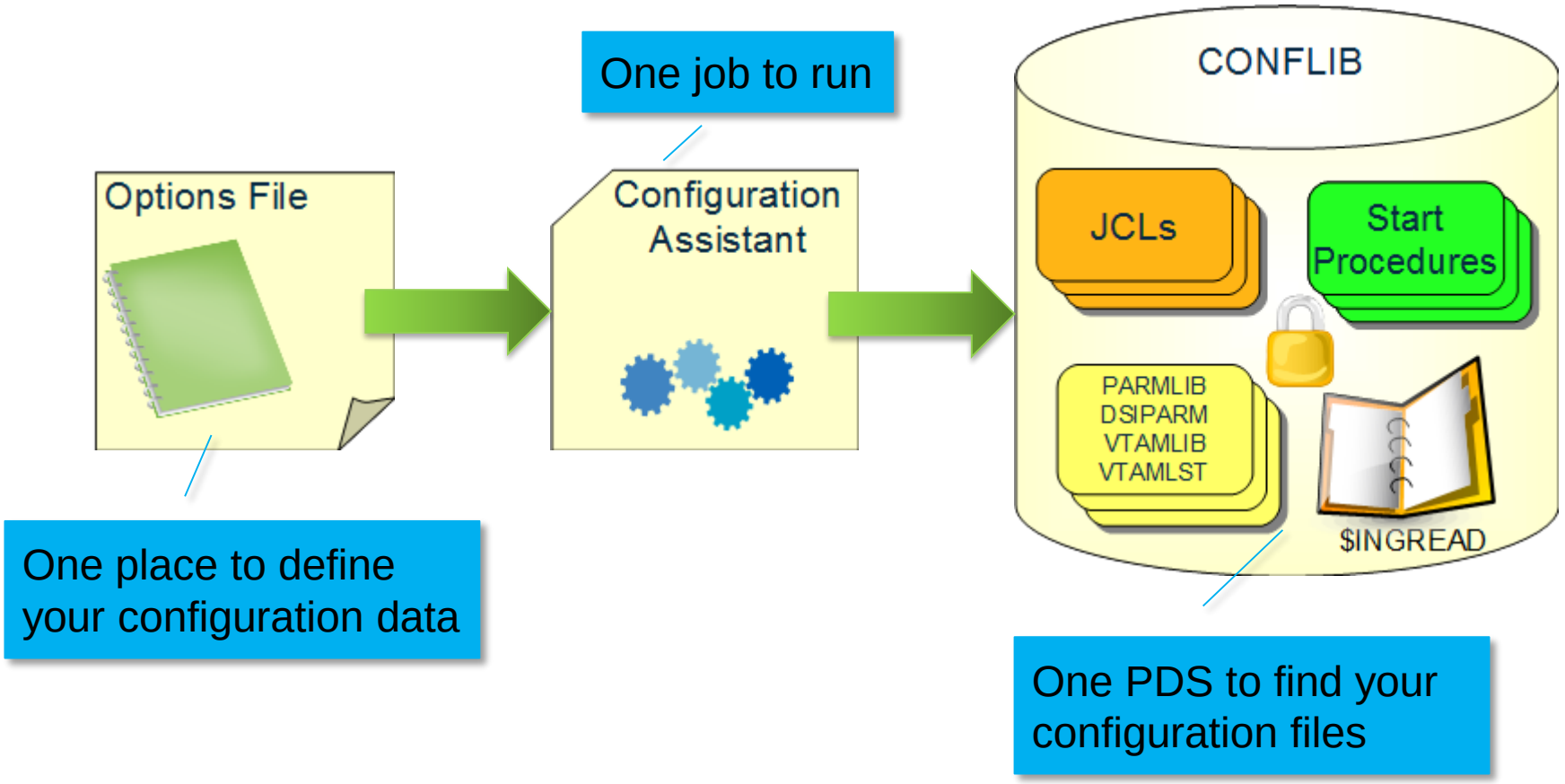
Perform those steps by ...

- … adapting all the identified sample files and …

- … filling in your environmental data at multiple places spread across the sample files.

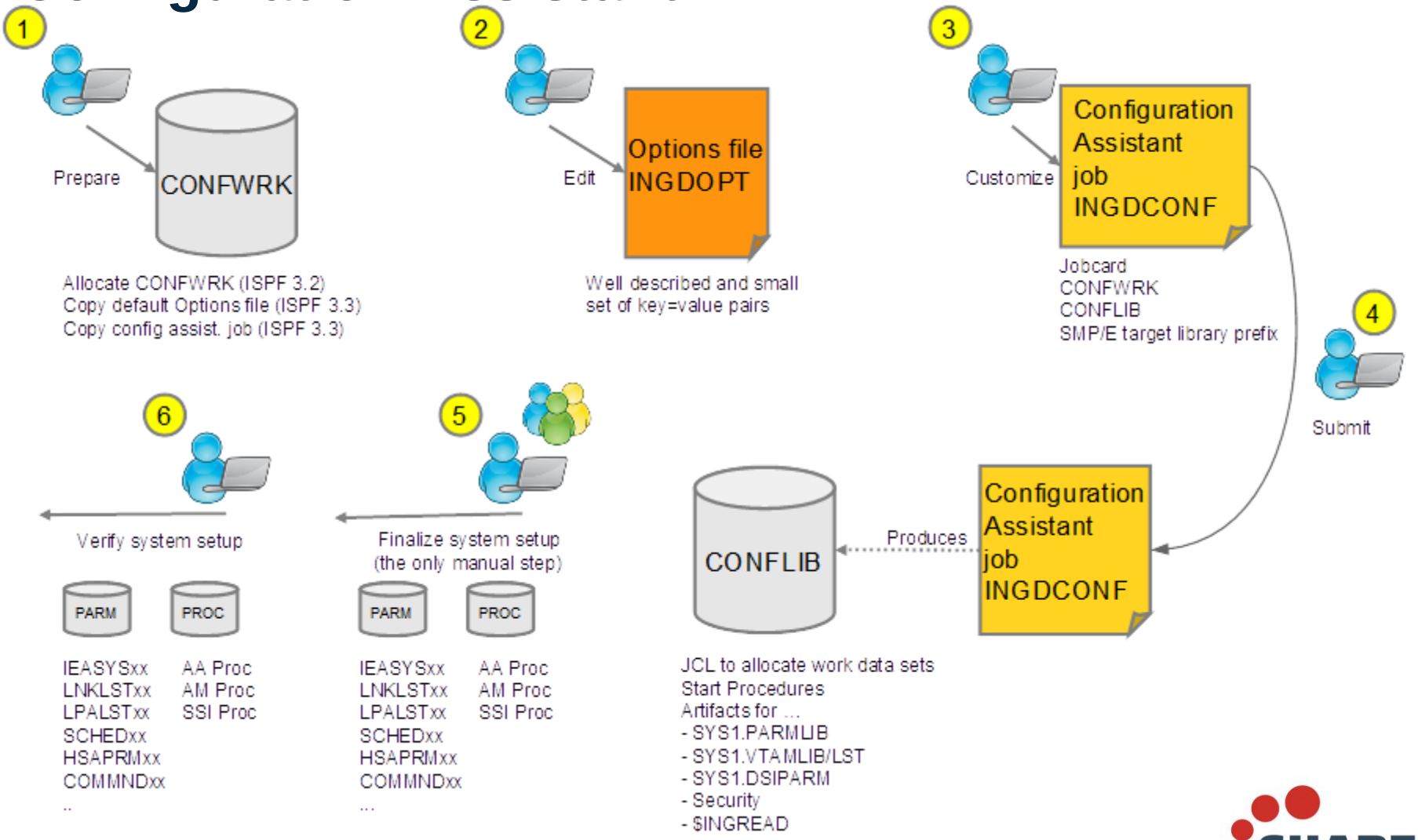
And do all this --- in a consistent way!

Configuration Assistant



Generating Configuration Files for multiple systems

Configuration Assistant



Configuration Assistant

```
* ... System Name
*
* Specify the name of the z/OS system where you plan to run
* your automation environment.
* If you plan to configure more than one system and you like to
* use common configuration members you can use system symbols.
* These system symbols must be defined on the systems where
* you plan to configure this product.
*
* Option .....: sys_sysname
* Required ...: Yes
* Default ....: None
* Example.....: SYS1 -or-
* ...: &SYSNAME. -or-
* ...: A&SYMBOL1.B&SYMBOL2.C
*
sys_sysname=&SYSNAME.
```

Equal processing available for VTAMID and NetView Domain ID

Customer can run the “deploy step” on multiple target systems

- based on the JCL with the system symbols
- generated from one Options File

Agenda

- Overview
- Integration with Omegamon
  - Immediate Message Reporting on TEP
  - Looping Address Space Suppression
- IPL complete notification
- Manage bulk starts / stops using Pacing Gates
- Configuration Assistant
- SAF support
- Extended XCF communication
- Configuration Refresh Indicator

System Authorization Facility (SAF) support

The configuration assistant creates an SAF configuration:

- User roles (=SAF groups)
  - SuperUser
  - AutoOperator
  - Administrator
  - Operator
  - User
- Command profiles
- User role-to-Command profile correlation
- User-to-User role correlation

- Allows you to review and adapt !!!

See also member INGESAF in shipped sample library

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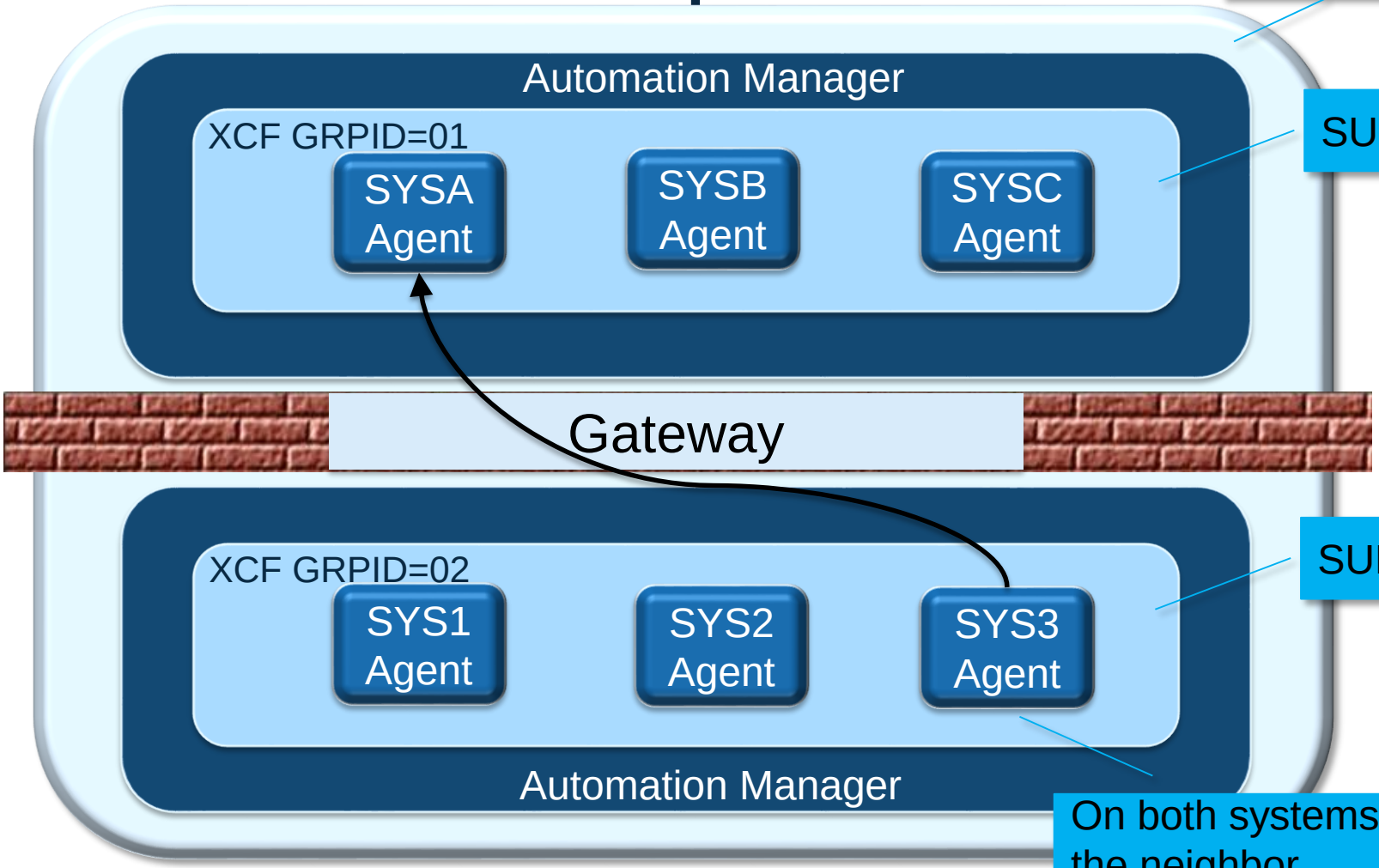
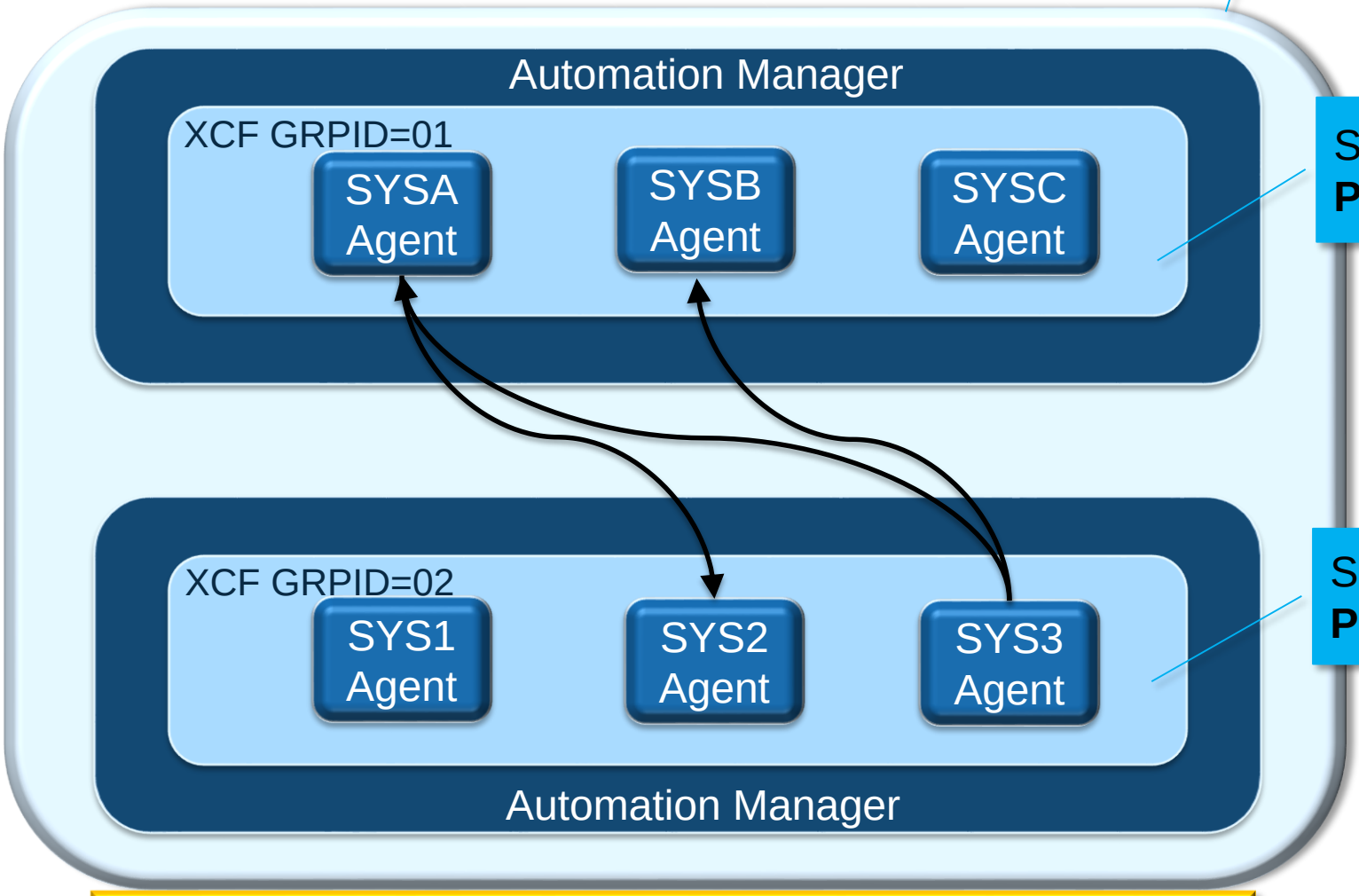
XCF Communication pre SA z/OS 3.5



Extended XCF Communication



PLEXID is a definition to be made in INGXINIT of DSIPARM

Extended XCF Communication

INGAMS XSTATUS

Different subplexes within same Physical Sysplex

```
INGKYAM0                      SA z/OS - Command Dialogs          Line 1      of 10
Domain Id . : IPZFL     ------------ INGAMS ------------         Date . . . : 05/15/14
Operator Id : BUMU              Sysplex = TSA1CTL                Time . . . : 12:58:48

Cmd:  A Manage       B Show Details  C Refresh Configuration  D Diagnostic

CMD System   Member     Role  Status      Sysplex  XCF Group  Release Comm PA
--- -------- ---------- ----- ----------- -------- ---------- ------- ---- ---
__  TSA1     TSA1$$$$2  SAM   READY       TSAPLEX  INGXSGA1   V3R5M0  XCF
__  TSA1     TSA1       AGENT REFRESH     TSAPLEX  INGXSGA1   V3R5M0  XCF
__  TSA1     TSA1$$$$1  PAM   READY       TSAPLEX  INGXSGA1   V3R5M0  XCF
__  TSA2     TSA2$$$$2  SAM   READY       TSAPLEX  INGXSGA2   V3R5M0  XCF
__  TSA2     TSA2$$$$1  PAM   READY       TSAPLEX  INGXSGA2   V3R5M0  XCF
__  TSA2     TSA2       AGENT READY       TSAPLEX  INGXSGA2   V3R5M0  XCF
__  TSA3     TSA3$$$$1  PAM   READY       TSAPLEX  INGXSGA0   V3R5M0  XCF
__  TSA3     TSA3       AGENT READY       TSAPLEX  INGXSGA0   V3R5M0  XCF
__  TSA4     TSA4$$$$1  SAM   READY       TSAPLEX  INGXSGA0   V3R5M0  XCF
__  TSA4     TSA4       AGENT READY       TSAPLEX  INGXSGA0   V3R5M0  XCF
```

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Configuration Refresh indication pre SA z/OS 3.5

Problem: How do I know that a configuration is refreshed on every system?

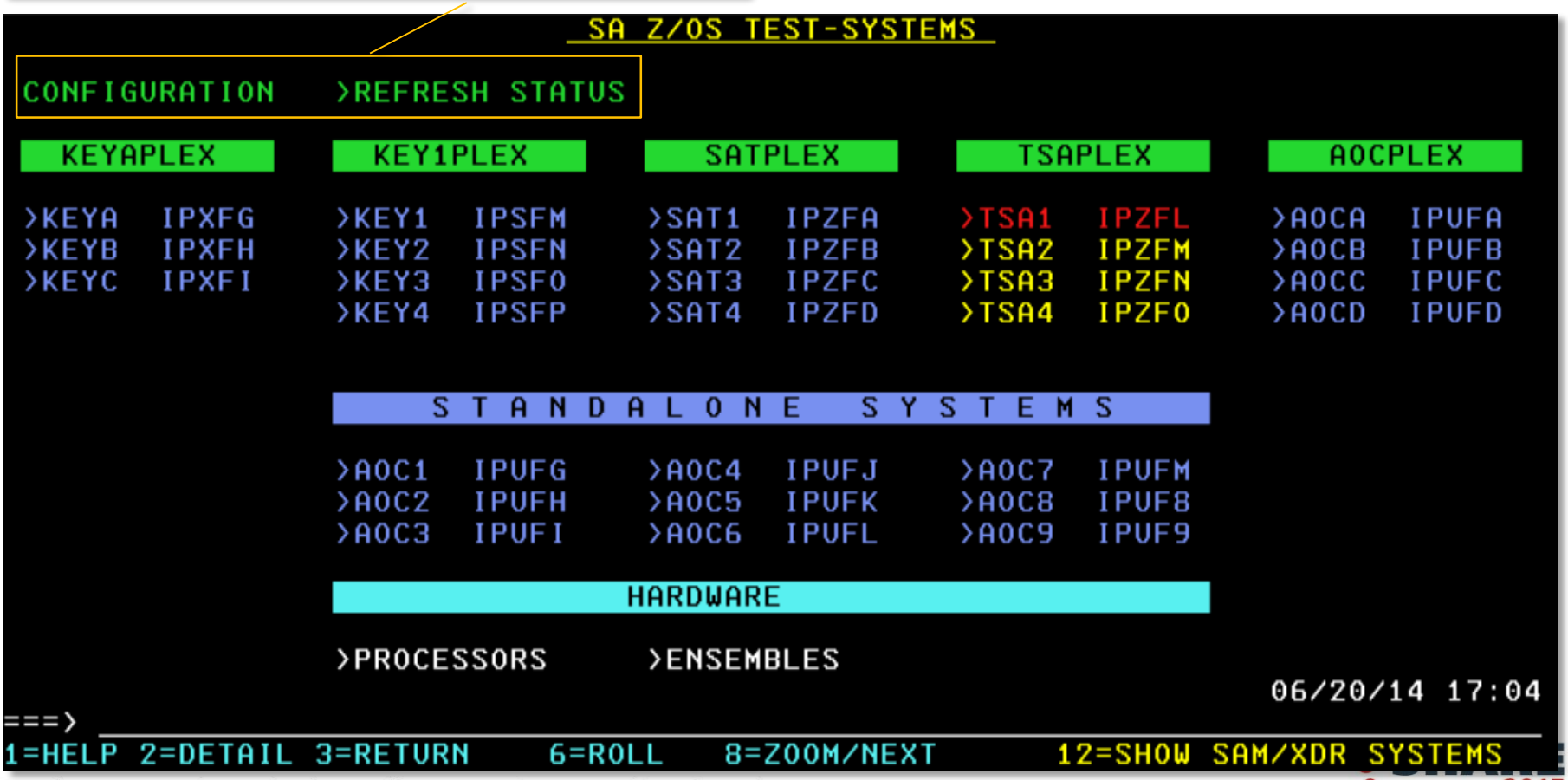
```
INGKYAM0                    SA z/OS - Command Dialogs          Line 1      of 10
Domain Id . . : IPZFL     ------------ INGAMS ------------     Date . . . : 05/15/14
Operator Id . : BUMU                   : TSA1CTL              Time . . . : 12:58:48

Cmd:  A Manage                                Refresh Configuration  D Diagnostic

CMD System   Member     Role  Status    Sysplex  XCF Group Release Comm PA
--- -------- --------- ----- --------- -------- --------- ------- ---- ---
__  TSA1     TSA1$$$$2 SAM   READY     TSAPLEX  INGXSGA1  V3R5M0  XCF
__  TSA1     TSA1      AGENT REFRESH   TSAPLEX  INGXSGA1  V3R5M0  XCF
__  TSA1     TSA1$$$$1 PAM   READY     TSAPLEX  INGXSGA1  V3R5M0  XCF
__  TSA2     TSA2$$$$2 SAM   READY     TSAPLEX  INGXSGA2  V3R5M0  XCF
__  TSA2     TSA2$$$$1 PAM   READY     TSAPLEX  INGXSGA2  V3R5M0  XCF
__  TSA2     TSA2      AGENT READY     TSAPLEX  INGXSGA2  V3R5M0  XCF
__  TSA3     TSA3$$$$1 PAM   READY     TSAPLEX  INGXSGA0  V3R5M0  XCF
__  TSA3     TSA3      AGENT READY     TSAPLEX  INGXSGA0  V3R5M0  XCF
__  TSA4     TSA4$$$$1 SAM   READY     TSAPLEX  INGXSGA0  V3R5M0  XCF
__  TSA4     TSA4      AGENT READY     TSAPLEX  INGXSGA0  V3R5M0  XCF
```

1) Press refresh button repeatedly

2) check in every Agent's Netlog for completion message
3) check on every agent with command 'ACF status'

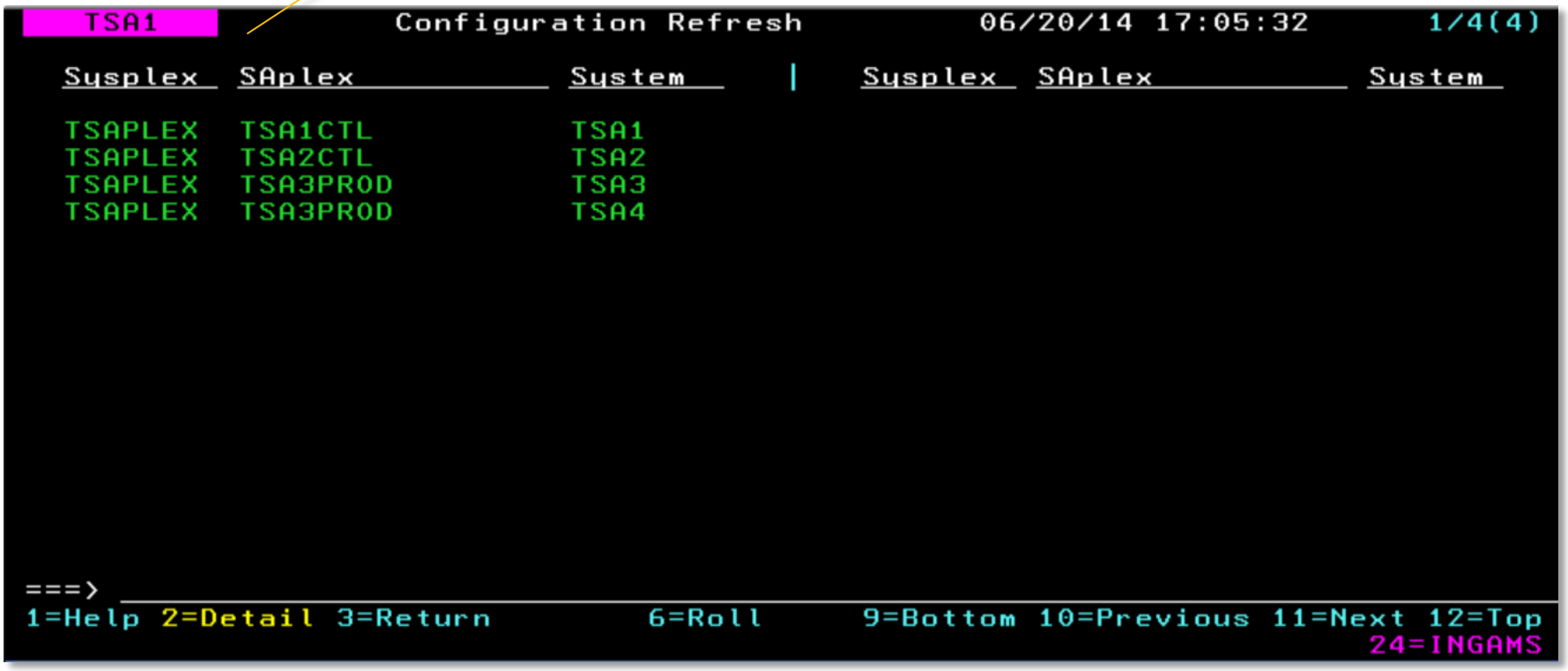
Configuration Refresh Indication

INGPTOP: added status field with new status component INGCFG



Configuration Refresh Indication

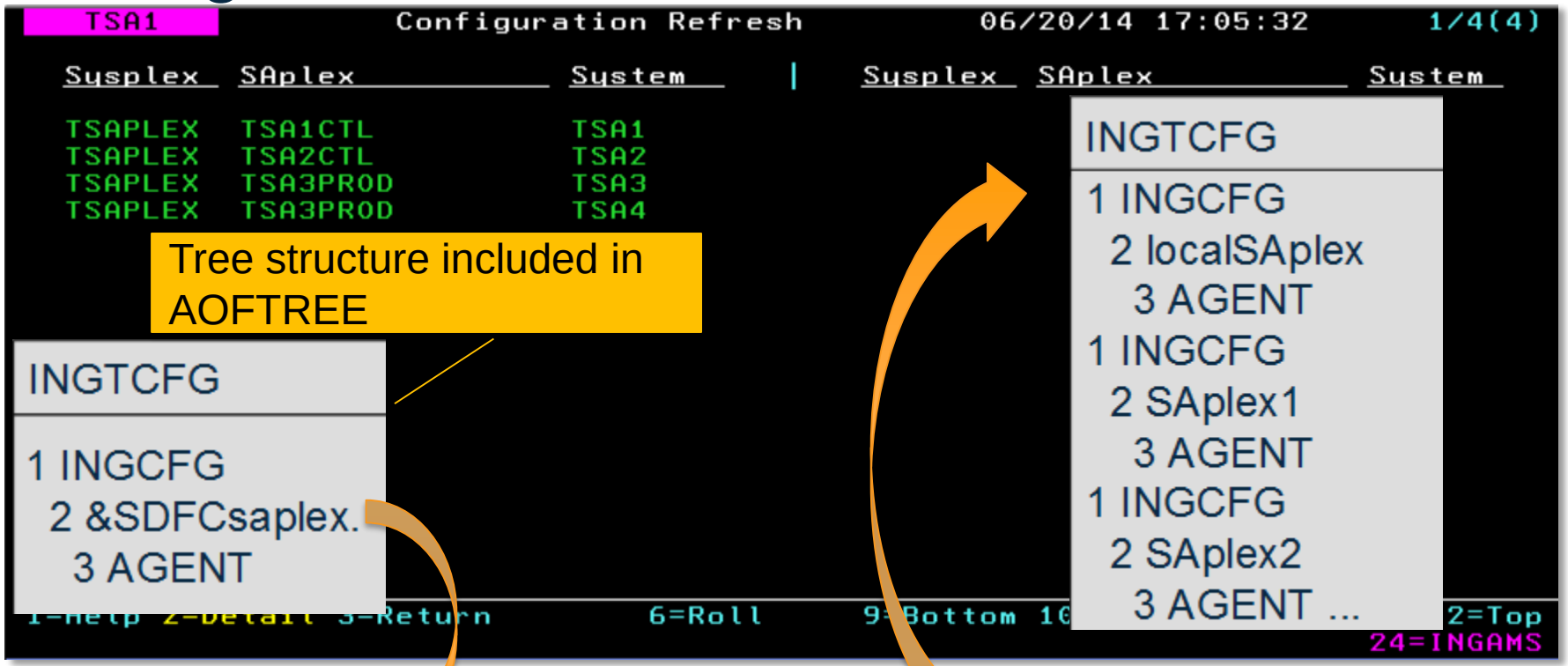
INGPCFG: new SDF panel



Configuration Refresh Indication

```
4 of 4                  ---- Detail Status Display ----          06/20/14 17:06:06

Component . . . : TSA4                    System  . . . . :
Color . . . . . : GREEN                   Priority  . . . : 650
Date  . . . . . : 06/20/14                Time  . . . . . : 17:01:47
Reporter  . . . : AUTO1                   Node  . . . . . : IPZFO
Info  . . . . . : TSAPLEX  TSA3PROD          TSA4
Reference value : TSA3PROD_TSA4
AOF031I Configuration Refresh on 'TSA4' is 'COMPLETE'.



===>
1=Help  3=Return 4=Delete  6=Roll 7=Up 8=Down          11=Bottom 12=Top
```

Configuration Refresh Indication



CNMSTYLE

```
COMMON.AOF_AAO_SDFCSAPLEX.0=2
COMMON.AOF_AAO_SDFCSAPLEX.1=localSAplex
COMMON.AOF_AAO_SDFCSAPLEX.2=SAplex1 SAplex2 ...
```

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System Automation for z/OS	Wiki SA z/OS	Homepage SA z/OS	Forum SA z/OS on developerWorks
Service Management Suite for z/OS	Wiki SMSz	Announcement SMSz	Forum SMSz on developerWorks

Customization Dialog

- PDB Browse
- PDB completely multi user capable
- Activity log
- Startup Policy
  - Refreshstart
  - Anystart
- Shutdown Pass Interval
- Command fields 227
- Mixed case for cmds in Startup and Shutdown
- AT Definitions for every Begin / End block
- Option to add REVISE('Y' AUTOMATE) generally in MRT
- Option to get informed for not automated WTORs
- Support for export and import of Processor data (PRO)

Sysops

- *SAPSRV policy, new ING_sap.tar
  - SA z/OS 3.5: OA46166
- Support for Chron options NOTIFY and REM in TMR and Settimer
  - SA z/OS 3.5: OA46166
- INGRDS: share name-value pairs between TSO and NetView
  - SA z/OS 3.4: OA45488
  - SA z/OS 3.5: OA45929
- INGRDS: access and replicate tables on remote systems
  - SA z/OS 3.4 and 3.5: OA46166
- Message EVJ120I contains TWS job‘s stepname
  - SA z/OS 3.4 and 3.5: OA46166

ProcOps

- SNMPv3 support
- zAware support