

Linux System Automation Using PROP



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Session 5548



Agenda

- Review of PROP Functions
- PROP for Linux
 - What Do We Automate?
 - How Clever Can You Be?
- PLINUX: The Tool
- PLIng: Expanding PLINUX using ssh and syslog



Review of PROP Functions

- Two parts to a PROP implementation:
 - PROP RTABLE
 - Action Routines
- PROP receives CPCONIO, MSG, SMSG, etc based on SET command settings
- Each action routine terminates PROP RTABLE processing (once fired, take the next message)
- Basic logging performed



PROP for Linux

- Linux outputs error and system management information in two locations:
 - /dev/console
 - Syslog daemon (either local or remote via UDP)
- Most “operator” function limited to console using default security configuration
 - Direct root logins normally not permitted on non-physical terminals



What Makes Sense to Automate?

- System startup/shutdown prompts
- Resource constraint messages
- Security alerts
- Remote versions of constraint and security messages processed by VM SYSLOGD (thanks, Neale!)



How Complicated Do You Want to Get?

- In general, the complexity of the action routine is relatively low if the message contains sufficient information
- Events that require additional diagnostics or interaction with the Linux guests are difficult due to CMS single-task structure (involves worker machines to perform extended command sequences)
 - Focus on one-shot messages first.



Example

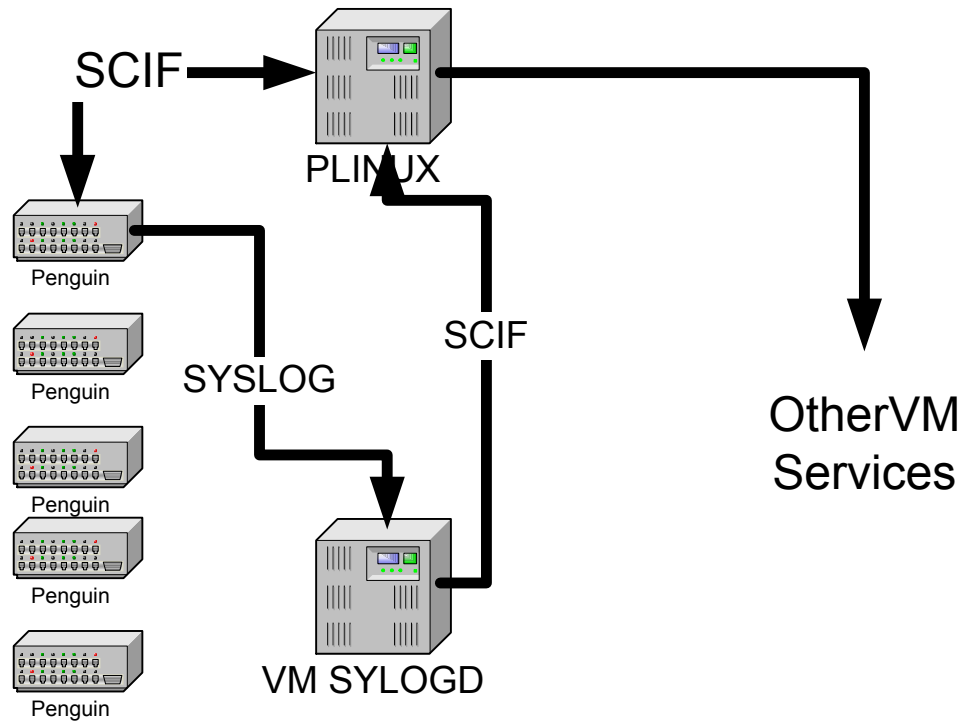
- Console message:
- PROP RTABLE:
- SPACE EXEC: sends mail to a paging service to alert a programmer



PLINUX: The Tool

- Individual action routines getting too complex to manage.
- Consolidate actions into one routine driven by CMS message repository and parser
- Handle:
 - Startup messages as far as runlevel 3
 - Basic resource exhaustion messages at 70, 80, 90 100%
 - Simple security scans
 - Periodic availability checks
 - SHUTDOWN/SHUTDOWN ALL CP MSG from VM operator

PLINUX Overview





PLINUX Overview

- Messages generated on console directly handled by VM PROP in PLINUX machine
 - Startup/shutdown
 - Resource exhaustion
- Messages generated by syslog are processed and displayed on VM SYSLOGD console and then processed by SCIF to PLINUX
 - Security messages



PLIng: The Plan

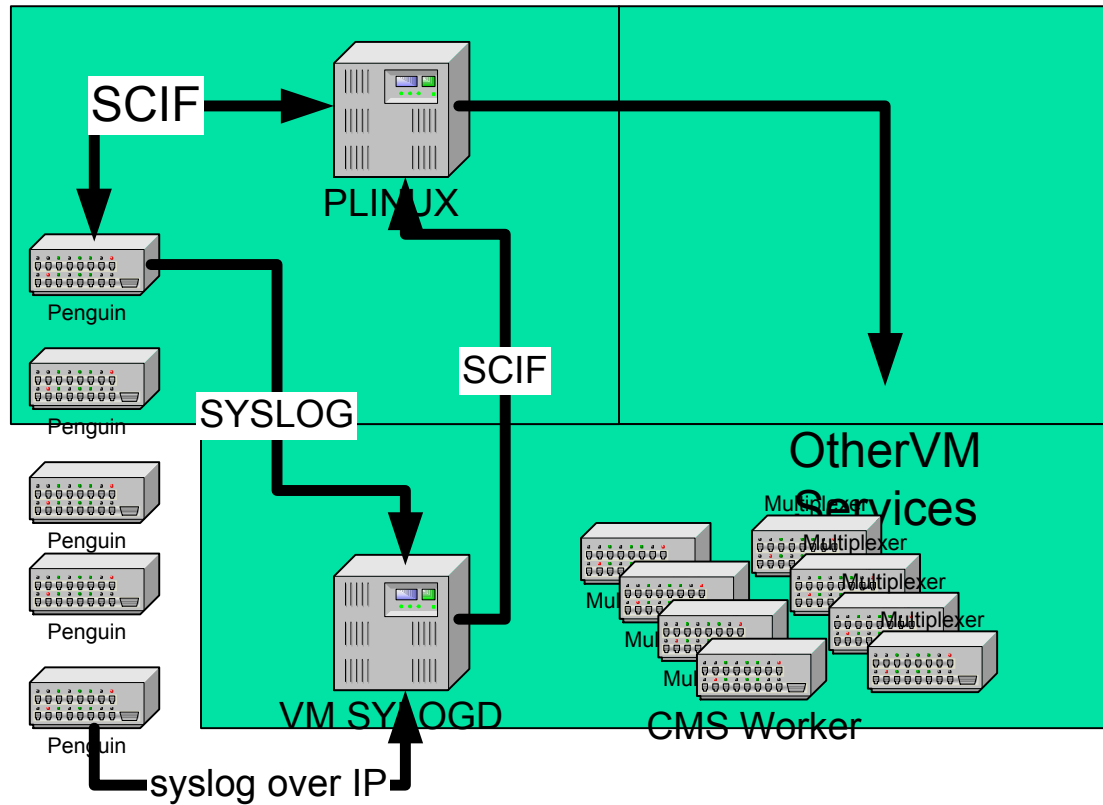
- Why should virtual servers have all the fun?
- Syslog is cross system and network friendly – why not expand this to be able to handle action routines operating on remote servers



Problems with PLIng

- No clean remote execution facility
 - Rexec works, but is insecure
 - No ssh for VM yet
- High volume of messages may be an issue for very large farms
 - Set IUCV MSGLIMIT very high (> 24K) for more than 1000 systems

PLIng Overview





PLIng Overview

- CMS-based workers initially
- Later, Linux based workers
 - Pick up ssh support
 - Snmp query tools
- PLIng maintains control via SCIF for the workers



Summary

- PROP is very useful in developing control systems for Linux guests
- Combined with CMS Pipelines, you have very powerful tools to build sophisticated management systems.
- PROP isn't limited to controlling just VM guests any more.



Questions



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