

# Linux System Automation Using PROP



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David Boyes

Sine Nomine Associates (SIN)

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# Agenda

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- 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

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- 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

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- 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?

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- 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?

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- 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

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

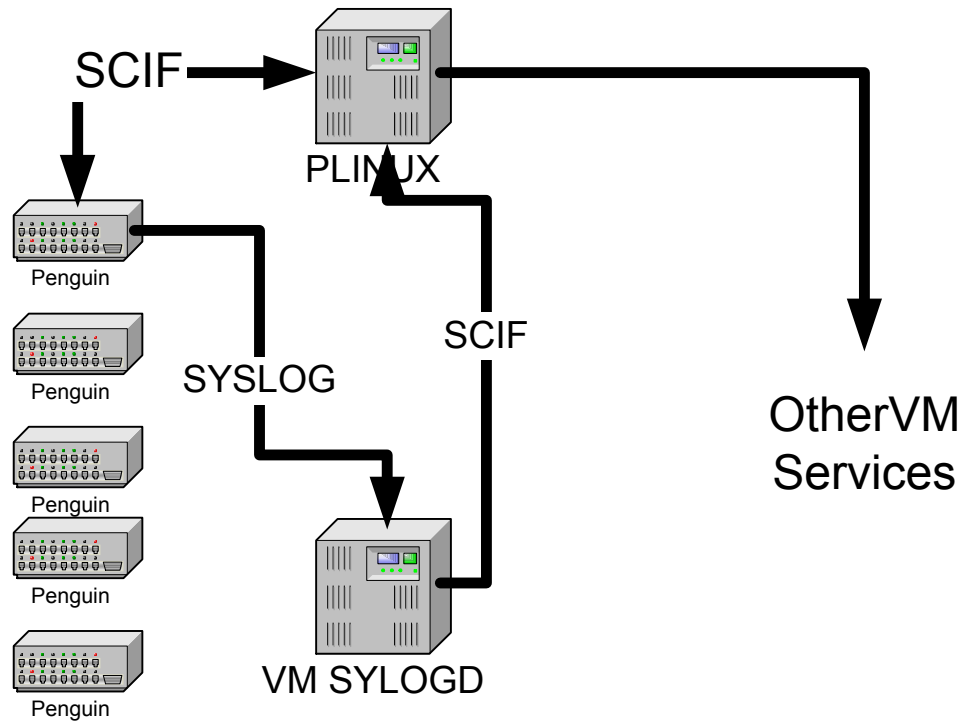


# PLINUX: The Tool

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- 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

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- 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

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- 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

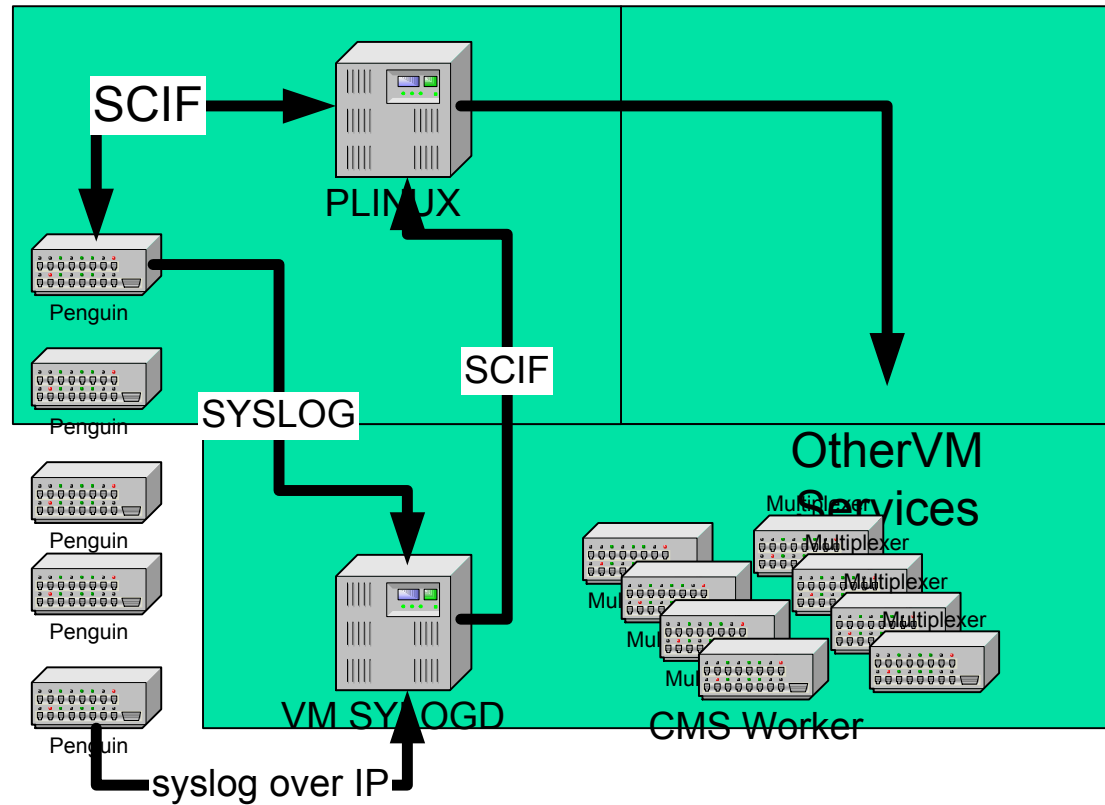


# Problems with PLIng

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- 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

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



# Summary

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- 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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# Contact Information

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[dboyes@sinenomine.net](mailto:dboyes@sinenomine.net)

+1 703 783 0438

