



Unified Heterogeneous HPCC Hardware Management Framework

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Motivation

HPCC users desire a remote hardware management utility

- One-to-many hardware management CLI
- Auto resolve runtime environment dependency
- Easy to use (Dell provide hundreds of sub-commands)
- One CLI to cross vendors/generations of HW/FW/SW

Can we bridge the gap between HPCC HW management and management components from vendors.

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CLI Dependency

Connections (network, direct serial, SOL, serial over telnet)

IPMI Proxy and CLI implementation

OS level components and versions dependency

OS kernel version dependency

IPMI FW version dependency

BIOS versions dependency

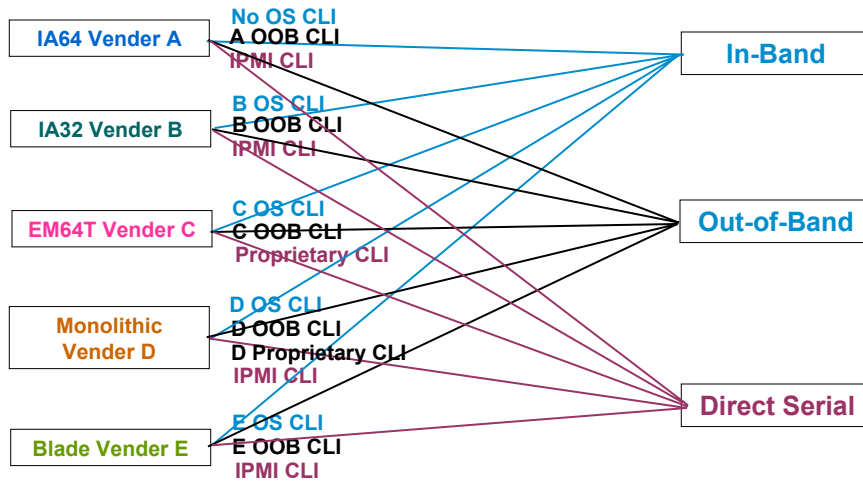
Management controller HW / FW dependency

BMC FW versions dependency

Platform architecture (IA32,EM64T, IA64, Monolithic, Blade)

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Existing management solutions



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Current Solutions

- Complex hardware management solution
 - 3 management fabrics
 - 10+ CLIs (command sets)
 - One HW/FW/SW dependency stack per CLI
 - Same specification, different interpretation
- Management cost & effort
 - Study HW/FW/SW spec, dependency and implementation
 - Test drive several hundred commands
 - Know when to use what command on which fabric

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The Need

- A unified CLI
 - One CLI to cross HW/FW/CLIs
 - Auto dependency solver
 - Self-contained, unattended local/remote installer to solve dependency issue (version management)
 - Expandability
 - Supports grouping
 - Supports one-to-many CLI engine
 - Add new platform/architecture/fabric/CLI
 - Output XML

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A Prototype

- Proof of Concept
 - Find out the best practice for CLI integration
 - Proof unified CLI technical feasibility
 - Create an unified interface across platform/architecture/fabric/CLI
- Results
 - Architected and implemented a unified CLI
 - Proved the unify CLI is technical feasible
 - Intelligence is needed
 - Command level failover
 - Power up management

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Achievements

- Completed a prototype
 - Unified CLI prototype
 - Automated-integrated installer mechanism
 - Case based on-line help
 - Grouping features
 - One-to-many engine
 - Across HW/FW/SW/CLI
 - Command level failover
- RedHat 9 and Enterprise Linux 3

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Future Work

- Enhance Input/Output Parser
- Intelligent HPCC Management GUI
- Command sets plug-In
- SNMP Command for device management
- OS level HPCC Agent

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Q & A