Power Management with 1E

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Department of State (DoS) – Power Management with 1E

Mission

U.S. Department of State

- Create a more secure, democratic, and prosperous world for the benefit of the American people and the international community
- Protect U.S. national interests and advance peace, security, and sustainable development
- Enterprise Network Management
 - Empower diplomacy by providing a secure and reliable global network that is available anytime, anywhere
 - Manage and oversee the design, operation, and life-cycle management of the Department's worldwide networks



Geography

- ▶ 50+ domestic facilities
- 250+ U.S. embassies, consulates and passport agencies





"Now the State Department's computer servers take up about 3 percent of our building space but consume 40 percent of our electricity load. We are working with a team from the IT Department to narrow that ratio. But one thing we could all do is turn off our computer. That actually would save energy."

- Secretary Clinton, 2009 Earth Day Speech



Desktop Power Management – Why Do It?

- Develop a robust, scalable power management tool with Wake-on-LAN capabilities for all DoS unclassified workstations that:
 - Supports the Department's Greening Diplomacy Initiative
 - Complies with E.O. 13514
 - Reduces energy costs by not having desktops powered on 24/7
 - Eliminates duplication of effort in power management strategies
 - Minimizes disruption to DoS operations (Wake-on-LAN and graceful shut down)



Power Management - Advantages

- Key findings*
 - A well-managed organization with 2,500 PCs can expect to reduce their power consumption by 43% versus an unmanaged one
 - By employing a power management solution, an organization can expect to save \$43,000 per year
 - Turning off machines can save money; however, productivity can be affected because updates will be made during normal business hours



Why 1E?

- DoS purchased the 1E Power Management suite, an industry leader in power management technology
 - Reduces power consumption costs and carbon emissions through the scheduled shutdown of workstations
 - Provides a robust reporting environment to accurately document power and carbon consumption and savings
 - Ease of installation and configuration
 - Small machine footprint
 - Roles-based



Why 1E? (cont'd)

- DoS purchased the 1E Power Management suite, an industry leader in power management technology
 - Integrates well with existing DoS systems management platform (SCCM) and initiatives
 - Centralized Patch Management (CPM)
 - Continuous monitoring/risk scoring
 - Compliance/vulnerability scanning
 - SCCM controls the 1E WakeUp agent
 - 1E WakeUp agent allows workstations to be powered on for security scanning, scheduled maintenance, and security patching
 - 1E agent provides health checks and automatically fixes common issues with SCCM client agents



Systems Power Management – How 1E Works





1E Reporting

- View the daily power consumption and cost reports for each computer in a given department
- Total power consumption of all computers running NightWatchman, broken down by day
- Display the monthly/daily costs for each department
- Estimate monthly cost savings as a result of using NightWatchman

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Reports			
Name	Description		
cross Reference, Daily			
Daily CO2 Emissions Cross Reference	Shaws the cross reference repart for CO2 emission: data	ecross a time period against daily	
Daily Power Consumption Cross Reference	Shows the cross reference report for power consum delly data	ption across a time period against	
Daily Power Costs Cross Reference	Shows the cross reference report for power costs as data	ross a time period against daily	
cross Reference, Monthly			
Nonthly CO2 Emissions Cross Reference	Shows the cross reference report for CO2 emission	across a time period	
Nonthly Power Consumption Cross Reference	Shows the cross reference report for power consum	ption across a time period	
Monthly Power Costs Cross Reference	Shows the cross reference report for power costs as	ross a time period	
Emissions, Daily			
Daily Organization CO2 Emissions	Shows the daily CO2 emissions for an organization		
Total daily CO2 emissions	Total emissions of all computers running NightWatch	man, broken down by day	
Emissions, Monthly			
Monthly Organization CO2 Emissions	Shows the monthly CO2 emissions for an organizati	n	
Total monthly CO2 emissions	Shows the total monthly CO2 emissions for all comp installed	uters where NightWatchman is	
Management Summaries			
Nanagement Summary: Savings vs actual baseline	Compares an actual baseline (snapshot) against an	ther snapshot showing savings	
Management Summary: Savings vs estimated baseline	Compares an estimated baseline (based on estimate snapshot showing savings	id hours 'on') against an actual	
Vetwork Statistics			
Client Versions	Shows how many instances of each version of Night	Watchman are installed	
Daily Power State Activity	Shows the daily power state activity for a specific or	mputer over time	
Daily Time In State	Shows the percentage of time machines have spent day	in each reported power state per	
Monthly Time In State	Shows the percentage of time machines have spent	in each reported power state	
NightWatchman Performance			
ine		Trusted sites Protected Mode: Off	₹,100% +



1E Reporting (cont'd)

Management Summary Reports

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Cost per KWh :	0.05		
kg per KWh :	0.657709		
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NightWat	chman Report		
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Report: Management Summary, by Simple Extrapolation

	Snapshot "June 2007"	Snapshot "July 2007"	
Period	Jun 2007 to Jun 2007	Jul 2007 to Jul 2007	
Days in Period	30 days	31 days	
Total PCs Seen	60,012	61,745	
			Savings (Extrapolated)
Avg kWh/PC/Day	0	0	0
Total Energy Used	449533.34 kWh	133667.05 kWh	344264.88 kWh
Total CO2 emitted	295662.13 kg (651823.41 lb)	87914.02 kg (193817.24 lb)	226426.11 kg (499184.12 lb)
Total Energy Cost	\$22,476.67	\$6,683.35	\$17,213.24

Power Consumption



Monthly CO₂ Emissions





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Power Management Cost Savings

 Estimated cost savings to DoS by implementing a power management solution

 Always on costs 	\$6,023,962
 Costs after implementation 	- \$4,158,919
 Savings total 	\$1,865,043

- Above figures based on:
 - Cost/kWh: 10.5 ¢
 - Number of workstations: 77,970



Coordinating Desktop Power Management

- Key stakeholder examples: overseas post administrators, domestic location administrators, technical teams responsible for specific technologies, and end users
- Local power management implementations
 - Some posts and domestic locations have their own power management systems (local WoL implementations, scripts to shutdown/startup systems, use of Windows power management policies)
 - We will incorporate their requirements into the enterprise solution
- Sensible policies upon implementation —> avoid shutting down logged-on users



Current Status

- IE purchased and lab tested
- Proceeding through internal approvals for use on DoS network
- Planning and deployment
 - Pilot
 - Production rollout: November 1
- Communications and coordination



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