

Oakland County Department of Information Technology Project Scope and Approach

Project Name: Powershell Scripting – Server On-prem and Cloud Project ID: T68186PS

Leadership Group: Information Technology Steering Committee			
Department: Information Technology		Division: Technical Systems and Networking	
Project Sponsor: Carl Wilson	Date Requested: 10/1/2018	PM Customer No. 186	
Request Type: <i>New Development</i>			
IT Team Name: Server Administration		IT Team No: 6	
Project Manager/Leader: Heidi Flack			
Account Number: 17030	Account Description: Technical Systems and Networking	Customer Name:	Information Technology
Grant Funded? No		Mandate? No	

Project Goal

To deliver an initial state in-house (PowerShell) scripting solution so that the OS and infrastructure build and change processes will be made consistent, repeatable, and auditable in place of existing manual processes for future builds and maintenance with systems.

Business Objective

To implement a more efficient and automated process for managing and building servers with a scripting solution and to determine costs and effort to deploy a full configuration management solution.

Major Deliverables

In-house solution PowerShell scripting

- PowerShell Scripting Training
- Scripting Analysis and Requirements
- Script Development
- Design / Tech Review
- Script Deployment & Test
- Knowledge documentation updates
- Initial deployment test
- Security scan
- Full Implementation and validation
- Process assessment and redefinition
- Repository for scripts
- DR Documentation updates

Approach

- Identify the repository for scripts and select. (SA, EA, SS)
- Define scripting requirements for a standard server build for the operating systems. (SA, AA)
- Define scripting standards for operating systems with future builds. (SA, AA)

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- Define process to maintain an evergreen model for maintaining currency of all scripts, including server hardening and technology updates. (SA)
- Identify/Create a scripting repository solution.
- Update change order process (if necessary). (SA)
- Establish training required and ensure team members are properly trained for creating and managing scripts and any changes in the process. (SA, WS, Apps)
- Develop standard scripts for servers for each operating systems. (SA, AA)
- Present standards and process updates for Tech Review and approval.
- Develop an implementation plan and communications for the new process.
- Update knowledge documentation (if necessary). (SA)
- Deploy initial scripting for each build type and test. (SA, AA)
- Run a security scan. (IS)
- Fully implement scripting process and validate scripts are properly executed. (SA)
- Store all standard scripts in repository. (SA)
- Update any changes to DR Documentation.

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Research & Analysis

Gartner Research Recommendation



Adobe Acrobat
Document

Benefits

See Return on Investment (ROI) Analysis Document

Impact

Number of Users	IT
Divisions	IT
Leadership Groups	IT

Risk

Business Environment	Med = Project requires some changes to existing business processes.
Technical Environment	Med = Previously implemented technologies, new requirements

Assumptions

Staffing IT Staffing: resources will be available for the hours indicated per the attached project plan.

Other Staffing: additional staffing will be available as follows:

<u>Role:</u>	<u>Name</u>
Sponsor/ TSN Stakeholder:	Carl Wilson
IT Stakeholder:	Jim Taylor
Security Stakeholder:	Mike Timm
CLEMIS Stakeholder:	Jeff Nesmith
Internal Services Stakeholder:	Janette McKenna
Apps Stakeholder:	Tammi Shepherd
EA Stakeholder:	EJ Widun

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Facilities

-

Technical

- PowerShell scripting will be deployed to all future system OS builds.

Funding

-

Other

-

Priority

-

Constraints

-

Exclusions

- Deploying scripts to current server builds.
- Procuring and Implementing a configuration management solution.

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PROJECT PHASE AUTHORIZATION

Phase(s):	
Total Estimated Application Services	Hours: 400
Total Estimated Technical Systems	Hours: 1,426
Total Estimated CLEMIS	Hours:
Total Estimated Internal Services	Hours:
IT Application Services Division Manager Approval:	Date:
IT Technical Systems Division Manager Approval:	Date:
IT CLEMIS Division Manager Approval:	Date:
IT Internal Services Division Manager Approval:	Date:
IT Management Approval:	
Approved: Yes No	Date:
Reason:	
Project Sponsor Approval:	
Title:	Date:

PROJECT SUMMARY

Authorized Development (see above)	Hours:
Preliminary Estimated Development for Future Phases	Hours:
Grand Total Estimated Development	Hours: 1,826 Cost: \$301,290

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PROJECT COMPLETION AUTHORIZATION

Customer Acceptance of Product:	
Title:	Date:
Project Office Review:	
	Date:

Powershell Scripting- Server On-prem and Cloud - Size Estimate (+/- 10% to 50%)					
	Type	ID	Task Name	Estimated Hours	Estimate Notes
1	Phase	000000	PROJECT MANAGEMENT	168	
2	Phase	020000-0	POWERSHELL SCRIPTING IMPLEMENTATION	1,158	
3	Phase	030000	IMPLEMENT SCRIPTS	500	
4					
1				1,826	

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Return on Investment Analysis

Project Summary

Description	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Total
Benefits/Savings:							
Tangible Benefits Subtotal:	0	0	0	0	0	0	0
Cost Avoidance Subtotal:	115,500	115,500	115,500	115,500	115,500	115,500	693,000
Costs:							
Development Services Subtotal:	301,290	0	0	0	0	0	301,290
Hardware Subtotal:	0	0	0	0	0	0	0
Software Subtotal:	0	0	0	0	0	0	0
Infrastructure Subtotal:	0	0	0	0	0	0	0
Training Subtotal:	27,500	0	0	0	0	0	27,500
Other Subtotal:	0	0	0	0	0	0	0
Annual Statistics:							
Annual Total Savings	115,500	115,500	115,500	115,500	115,500	115,500	693,000
Annual Total Costs	328,790	0	0	0	0	0	328,790
Annual Return on Investment	(213,290)	115,500	115,500	115,500	115,500	115,500	364,210
Annual Costs/Savings Ratio	284.67%	0.00%	0.00%	0.00%	0.00%	0.00%	
Project Cumulative Statistics:							
Cumulative Total Savings	115,500	231,000	346,500	462,000	577,500	693,000	693,000
Cumulative Total Costs	328,790	328,790	328,790	328,790	328,790	328,790	328,790
Cumulative Return on Investment	(213,290)	(97,790)	17,710	133,210	248,710	364,210	364,210
Cumulative Cost/Savings Ratio	284.67%	142.33%	94.89%	71.17%	56.93%	47.44%	47.44%
Year Positive Payback Achieved			Year 3				Year 3
State or Federal Mandate?							
Signatures:							
Benefits Reviewed By Project Sponsor	_____			Date:	_____		
Costs (including IT Resources) Reviewed By Information Technology Project Manager	_____			Date:	_____		

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Return on Investment Analysis

Savings Detail

Benefit/Savings Description	Project Savings Category	Budget Category/Funding Source	Unit Desc	Units	Rate per Unit	Total Savings
Server Build and maintenance automation: Scripting would reduced the avg 8hr for a manual server build to less than 1 hr per server, saving \$1155 (\$165*7) per server build. The estimate is a portion of the total appx builds per yr. However, this cannot claim a hard dollar savings. (see Assumptions)	Cost Avoidance	Technical Services & Ntwkg	EA	100	1,155	115,500
Workstations currently has two resources who leverage PowerShell scripting for deployments (Windows 10, System Center config Mngr). Expanding scripting skill set to others on the WS team would reduce deployment effort, errors and turnaround time. Currently only two resources are trained/skilled.	Intangible Benefit	Technical Services & Ntwkg				0
Workstation vendors prefer and recommend leveraging Powershell for support capabilities.	Intangible Benefit	Technical Services & Ntwkg				

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Savings Detail

Benefit/Savings Description	Project Savings Category	Budget Category/Funding Source	Unit Desc	Units	Rate per Unit	Total Savings
Scripting servers (OS and infrastructure) would deliver improvements with builds and changes being auditable, repeatable, consistent and logged.	Intangible Benefit	Technical Services & Ntwkg				0
Scripting reduces time with development and changes, making the TSN Server Admin team more responsive to customer needs and allows more time to address other tasks/needs.	Intangible Benefit	Technical Services & Ntwkg				0
Scripting enhances skill level and results in a more efficient process that can be learned by the entire server team and not specific to a limited number of resources.	Intangible Benefit	Technical Services & Ntwkg				0
Creates the foundation for future scripting opportunities that can extend to the Application layer.	Intangible Benefit	Technical Services & Ntwkg				0
Scripting allows for “bulk” or “group” changes to infrastructure, improving turnaround with builds and reducing the size of maintenance windows and potential impact to customers	Intangible Benefit	Technical Services & Ntwkg				0

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Savings Detail

Benefit/Savings Description	Project Savings Category	Budget Category/Funding Source	Unit Desc	Units	Rate per Unit	Total Savings
Scripting changes can be version-controlled for consistent development and continual improvement.	Intangible Benefit	Technical Services & Ntwkg				0
Scripting changes reduces the likelihood of human error	Intangible Benefit	Technical Services & Ntwkg				0

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Savings Detail

Benefit/Savings Description	Project Savings Category	Affects Project ROI?						Potential Savings Extensions					
		Y1	Y2	Y3	Y4	Y5	Y6	Y1	Y2	Y3	Y4	Y5	Y6
Server Build and maintenance automation: Scripting would reduced the avg 8hr for a manual server build to less than 1 hr per server, saving \$1155 (\$165*7) per server build. The estimate is a portion of the total appx builds per yr. However, this cannot claim a hard dollar savings. (see Assumptions)	Cost Avoidance	x	x	x	x	x	x	115,500.00	115,500.00	115,500.00	115,500.00	115,500.00	115,500.00
Workstations currently has two resources who leverage PowerShell scripting for deployments (Windows 10, System Center config Mngr). Expanding scripting skill set to others on the WS team would reduce deployment effort, errors and turnaround time. Currently only two resources are trained/skilled.	Intangible Benefit												
Workstation vendors prefer and recommend leveraging Powershell for support capabilities.	Intangible Benefit												

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Savings Detail

Benefit/Savings Description	Project Savings Category	Affects Project ROI?						Potential Savings Extensions					
		Y1	Y2	Y3	Y4	Y5	Y6	Y1	Y2	Y3	Y4	Y5	Y6
Scripting servers (OS and infrastructure) would deliver improvements with builds and changes being auditable, repeatable, consistent and logged.	Intangible Benefit												
Scripting reduces time with development and changes, making the TSN Server Admin team more responsive to customer needs and allows more time to address other tasks/needs.	Intangible Benefit												
Scripting enhances skill level and results in a more efficient process that can be learned by the entire server team and not specific to a limited number of resources.	Intangible Benefit												
Creates the foundation for future scripting opportunities that can extend to the Application layer.	Intangible Benefit												
Scripting allows for “bulk” or “group” changes to infrastructure, improving turnaround with builds and reducing the size of maintenance windows and potential impact to customers	Intangible Benefit												

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Savings Detail

Benefit/Savings Description	Project Savings Category	Affects Project ROI?						Potential Savings Extensions					
		Y1	Y2	Y3	Y4	Y5	Y6	Y1	Y2	Y3	Y4	Y5	Y6
Scripting changes can be version-controlled for consistent development and continual improvement.	Intangible Benefit												
Scripting changes reduces the likelihood of human error	Intangible Benefit												

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Savings Summary

Benefit/Savings Description	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Total
Tangible Benefit:							
<i>Tangible Benefits Subtotal:</i>							
Cost Avoidance:							
Server Build and maintenance automation: Scripting would reduced the avg 8hr for a manual server build to less than 1 hr per server, saving \$1155 (\$165*7) per server build. The estimate is a portion of the total appx builds per yr. However, this cannot claim a hard dollar savings. (see Assumptions)	115,500	115,500	115,500	115,500	115,500	115,500	693,000
<i>Cost Avoidance Subtotal:</i>	115,500	115,500	115,500	115,500	115,500	115,500	693,000
Intangible Benefit:							
Workstations currently has two resources who leverage PowerShell scripting for deployments (Windows 10, System Center config Mngr). Expanding scripting skill set to others on the WS team would reduce deployment effort, errors and turnaround time. Currently only two resources are trained/skilled.	0	0	0	0	0	0	0
Workstation vendors prefer and recommend leveraging Powershell for support capabilities.	0	0	0	0	0	0	0
Scripting servers (OS and infrastructure) would deliver improvements with builds and changes being auditable, repeatable, consistent and logged.	0	0	0	0	0	0	0

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Return on Investment Analysis

Savings Summary

Benefit/Savings Description	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Total
Scripting reduces time with development and changes, making the TSN Server Admin team more responsive to customer needs and allows more time to address other tasks/needs.	0	0	0	0	0	0	
Scripting enhances skill level and results in a more efficient process that can be learned by the entire server team and not specific to a limited number of resources.	0	0	0	0	0	0	
Creates the foundation for future scripting opportunities that can extend to the Application layer.	0	0	0	0	0	0	
Scripting allows for “bulk” or “group” changes to infrastructure, improving turnaround with builds and reducing the size of maintenance windows and potential impact to customers	0	0	0	0	0	0	
Scripting changes can be version-controlled for consistent development and continual improvement.	0	0	0	0	0	0	
Scripting changes reduces the likelihood of human error	0	0	0	0	0	0	
Savings Total:	115,500	115,500	115,500	115,500	115,500	115,500	693,000

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Cost Detail

Cost Description	Project Cost Category	Budget Category/Funding Source	Unit Desc	Units	Rate per Unit	Total Cost	Annual Multiplier	Affects Project ROI?						
								Y1	Y2	Y3	Y4	Y5	Y6	
IT Hours - New Development	Development Svcs	Technical Services & Ntwkg	HR	1,826	165	301,290		x						
Training - Powershell Scripting (11 ppl; Credits applied for 9 of the 20 total)	Training	Technical Services & Ntwkg	EA	11	2,500	27,500		x						

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Cost Detail

Cost Description	Project Cost Category	Potential Cost Extensions					
		Y1	Y2	Y3	Y4	Y5	Y6
IT Hours - New Development	Development Svcs	301,290.00					
Training - Powershell Scripting (11 ppl; Credits applied for 9 of the 20 total)	Training	27,500.00					

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Cost Summary

Cost Description	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Total
Development Services:							
IT Hours - New Development	301,290						301,290
<i>Development Services Subtotal:</i>	301,290						301,290
Hardware:							
<i>Hardware Subtotal:</i>							
Software:							
<i>Software Subtotal:</i>							
Infrastructure:							
<i>Infrastructure Subtotal:</i>							
Training:							
Training - Powershell Scripting (11 ppl; Credits applied for 9 of the 20 total)	27,500						27,500
<i>Training Subtotal:</i>	27,500						27,500
Other:							
0	0	0	0	0	0	0	0
<i>Other Subtotal:</i>							
Costs Total:	328,790						328,790

