

# Oakland County Department of Information Technology Project Scope and Approach

**Project Name: Commercial Cloud - Checkpoint Redesign**

**Project ID: TS8186CR**

<b>Leadership Group:</b> Information Technology Steering Committee					
<b>Department:</b> Information Technology			<b>Division:</b> Technical Systems and Networking		
<b>Project Sponsor:</b> Bridget Kravchenko		<b>Date Requested:</b> 9/11/2018		<b>PM Customer No.</b> 186	
<b>Request Type:</b> New Development					
<b>IT Team Name:</b> SEP			<b>IT Team No:</b> T		
<b>Project Manager/Leader:</b> Mahesh Parab					
<b>Account Number:</b>	17030	<b>Account Description:</b>	Technical Systems and Networking	<b>Customer Name:</b>	Information Technology
<b>Grant Funded?</b> No			<b>Mandate?</b> No		

## Project Goal

To redesign security architecture for the Checkpoint Firewalls in the Commercial AWS Cloud so that security posture of the environment is improved.

## Business Objective

Configure and set up the Check Point infrastructure in the Commercial AWS Cloud environment.

### **Major Deliverables**

- Design for the CheckPoint firewall in the Commercial Cloud.
- EA tech review approval.
- Checkpoint management console and smartevent.
- Firewall blades comprehended in the design: IPS, App/URL, and Threat Management.
- Inspection at ingress and egress traffic points

### **Approach**

- InfoSec and EA team to set up the Check Point infrastructure in the AWS Commercial Cloud environment.

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## Research & Analysis

### Gartner Research Recommendation

*Not conducted. The project is part of the [strategy](#) developed with Coalfire for the Cloud environment.*

## Benefits

See *Return on Investment (ROI) Analysis Document*

## Impact

Number of Users IT

Divisions IT

Leadership Groups IT Steering Committee

## Risk

**Business Environment** Low - Little or no impact to existing business processes.

**Technical Environment** Medium - Previously implemented technologies with new aspects and/or 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>	<u>Hours per Day</u>
Project Sponsor	Bridget Kravchenko	As needed
EA Stakeholder	EJ Widun	As needed
Apps Stakeholder	Tammi Shephard	As needed
Internal Services Stakeholder	Janette McKenna	As needed
CLEMIS Stakeholder	Jeff Nesmith	As needed

## **Facilities**

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- None

## Technical

- Separate appliances will be used to inspection at ingress and egress traffic points
- The design would support a dedicated VPC and instances will span 2 Availability Zones (AZ-A and AZ-B) with the load balancer managing the traffic to each side for failover availability. Ideally the architecture design would comprehend network model leveraging high availability by utilizing autoscaling and/or a clustered model.
- Availability of a VPC in the AWS Commercial Cloud environment for setting up the Check Point security architecture.

## Funding

- 

## Other

- The size estimates are based on assumption to replicate the Checkpoint design delivered in the [TT8186CP GovCloud - Checkpoint Implementation project](#) in the Commercial Cloud environment.

## Priority

## Constraints

- 
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## Exclusions

- Migration of workloads in the Commercial AWS cloud to the new Checkpoint environment delivered in this project.
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# Oakland County Department of Information Technology Project Scope and Approach

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## PROJECT PHASE AUTHORIZATION

<b>Phase(s): All</b>	
<b>Total Estimated Application Services</b>	<b>Hours:</b>
<b>Total Estimated Technical Systems</b>	<b>Hours: 264</b>
<b>Total Estimated CLEMIS</b>	<b>Hours:</b>
<b>Total Estimated Internal Services</b>	<b>Hours:</b>
<b>IT Application Services Division Manager Approval:</b>	<b>Date:</b>
<b>IT Technical Systems Division Manager Approval:</b>	<b>Date:</b>
<b>IT CLEMIS Division Manager Approval:</b>	<b>Date:</b>
<b>IT Internal Services Division Manager Approval:</b>	<b>Date:</b>
<b>IT Management Approval:</b>	
Approved: <span style="margin-left: 150px;">Yes</span> <span style="margin-left: 100px;">No</span>	<b>Date:</b>
Reason:	
<b>Project Sponsor Approval:</b>	
Title:	<b>Date:</b>

## PROJECT SUMMARY

<b>Authorized Development (see above)</b>	<b>Hours: 264</b>
<b>Preliminary Estimated Development for Future Phases</b>	<b>Hours:</b>
<b>Grand Total Estimated Development</b>	<b>Hours: 264</b> <span style="float: right;"><b>Cost: \$43,560</b></span>

**Oakland County  
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Project Scope and Approach**

**Project Name: Commercial Cloud - Checkpoint Redesign**

**Project ID: TS8186CR**

**PROJECT COMPLETION AUTHORIZATION**

<b>Customer Acceptance of Product:</b>	
Title:	Date:
<b>Project Office Review:</b>	Date:

**Commercial Cloud - Checkpoint Redesign - Size Estimate (+/- 10% to 50%)**

1	Type	ID	Task Name	Estimated	Estimate Notes
2				Hours	
3	<b>Phase</b>	<b>000000</b>	<b>PROJECT ADMINISTRATION</b>	<b>95</b>	
4	<b>Phase</b>	<b>100000</b>	<b>Commercial Cloud CheckPoint</b>	<b>169</b>	
5				264	

**Oakland County -- Cloud Program**

Return on Investment Analysis

Project Summary

Description	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Total
<b>Benefits/Savings:</b>											
Tangible Benefits Subtotal:	303,000	13,000	712,000	182,000	26,000	26,000	26,000	26,000	26,000	26,000	1,366,000
Cost Avoidance Subtotal:	858,196	570,821	1,057,262	785,653	529,439	1,299,651	793,503	940,339	785,653	663,503	8,284,019
<b>Costs:</b>											
Development Services Subtotal:	1,160,519	179,126	166,080	0	0	0	0	0	0	0	1,505,725
Hardware Subtotal:	795,105	338,842	302,178	302,178	302,178	455,538	338,842	302,178	302,178	302,178	3,741,394
Software Subtotal:	340,241	282,254	274,103	274,103	274,103	274,103	282,254	274,103	274,103	274,103	2,823,471
Infrastructure Subtotal	161,461	161,461	161,461	161,461	161,461	161,461	161,461	161,461	161,461	161,461	1,614,606
Training Subtotal:	0	0	0	0	0	0	0	0	0	0	0
Other Subtotal:	0	248	0	0	0	0	248	0	0	0	497
<b>Annual Statistics:</b>											
Annual Total Savings	1,161,196	583,821	1,769,262	967,653	555,439	1,325,651	819,503	966,339	811,653	689,503	9,650,019
Annual Total Costs	2,457,325	961,931	903,822	737,742	737,742	891,102	782,805	737,742	737,742	737,742	9,685,693
Annual Return on Investment	(1,296,130)	(378,110)	865,440	229,911	(182,303)	434,549	36,698	228,597	73,911	(48,239)	(35,675)
Annual Costs/Savings Ratio	211.62%	164.76%	51.08%	76.24%	132.82%	67.22%	95.52%	76.34%	90.89%	107.00%	
<b>Project Cumulative Statistics:</b>											
Cumulative Total Savings	1,161,196	1,745,017	3,514,279	4,481,932	5,037,371	6,363,021	7,182,524	8,148,863	8,960,516	9,650,019	9,650,019
Cumulative Total Costs	2,457,325	3,419,257	4,323,078	5,060,820	5,798,562	6,689,663	7,472,468	8,210,210	8,947,952	9,685,693	9,685,693
Cumulative Return on Investment	(1,296,130)	(1,674,240)	(808,800)	(578,888)	(761,191)	(326,642)	(289,944)	(61,347)	12,564	(35,675)	(35,675)
Cumulative Cost/Savings Ratio	211.62%	195.94%	123.01%	112.92%	115.11%	105.13%	104.04%	100.75%	99.86%	100.37%	100.37%
Year Positive Payback Achieved									Year 9		Year 9
State or Federal Mandate?											
<b>Signatures:</b>											
Benefits Reviewed By Project Sponsor	_____			Date:	_____						
Costs (including IT Resources) Reviewed By Information Technology Project Manager	_____			Date:	_____						

Oakland County -- Cloud Program

Return on Investment Analysis

Savings Detail

Benefit/Savings Description	Project Savings Category	Budget Category/Funding Source	Unit Desc	Units	Rate per Unit	Total Savings	Annual Multiplier	Affects Project ROI?										Potential Savings Extensions											
								Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	Y1	Y2	Y3	Y4	Y5	Y6						
Gain the understanding of cloud computing and infrastructures	Intangible Benefit	Technical Services & Ntwkg				0																							
Gain new and improved OC Cloud standards	Intangible Benefit	Technical Services & Ntwkg				0																							
Establish Goals and Objectives for Cloud implementations	Intangible Benefit	Technical Services & Ntwkg				0																							
Cloud Program - TT6186CP SQL License Cost Avoidance by reducing enterprise pricing @ renewal	Cost Avoidance	Technical Services & Ntwkg	EA	1	29,705	29,705				x	x	x	x	x	x	x	x	x	x										
<b>Cloud AD - TT6186AD</b> Allows cloud connections for on-prem applications	Intangible Benefit	Technical Services & Ntwkg				0																							
Pay as you go servers and SAN	Intangible Benefit	Technical Services & Ntwkg																											
Deferral of Maintenance and Upgrades for Hardware and Storage to IAAS provider	Intangible Benefit	Technical Services & Ntwkg																											
Unlimited resource scalability for servers and storage	Intangible Benefit	Technical Services & Ntwkg																											
<b>Cloud Program - TT6186CP</b> Capital Equipment Plan Savings based on budget reductions.	Tangible Benefit	Technical Services & Ntwkg	EA	1	0	1,132,000		x	x	x																			
Cloud Program - TT6186CP Intrusion Detection System with 24 by 7 monitoring by an outside firm.	Intangible Benefit	Technical Services & Ntwkg	EA																										
Cloud Refresh - Separation of Dev/QA from production which increases the availability of production	Intangible Benefit	Technical Services & Ntwkg	EA																										
<b>Cloud Connect - TT6186NC</b> Checkpoint allows greater functionality and capabilities than Fire Eye, including a single pane of glass, already supported in the environment, and minimal work to upgrade as opposed to procure and fully implementing a new solution.	Intangible Benefit	Technical Services & Ntwkg																											
<b>Cloud Connect - TT6186NC</b> Radware Infrastructure	Cost Avoidance	Technical Services & Ntwkg	EA	1	110,000	110,000		x						x															

**Oakland County -- Cloud Program**  
Return on Investment Analysis

Savings Detail

Benefit/Savings Description	Project Savings Category	Budget Category/Funding Source	Unit Desc	Units	Rate per Unit	Total Savings	Annual Mu	Affects Project ROI?										Potential Savings Extensions							
								Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	Y1	Y2	Y3	Y4	Y5	Y6		
Cloud Connect - TT6186NC Radware Maintenance	Cost Avoidance	Technical Services & Ntwkg	ANN	1	7,400	7,400			x	x	x	x	x		x	x	x	x		7,400	7,400	7,400	7,400	7,400	
Cloud Connect - TT6186NC Packetshaper Infrastructure	Cost Avoidance	Technical Services & Ntwkg	EA	1	150,000	150,000				x						x					150,000				
Cloud Connect - TT6186NC Packetshaper Maintenance	Cost Avoidance	Technical Services & Ntwkg	ANN	1	15,803	15,803			x	x	x	x	x		x	x	x	x		15,803	15,803	15,803	15,803	15,803	
Cloud Connect - TT6186NC Fire Eye Upgrade (10GB)	Cost Avoidance	Technical Services & Ntwkg	ANN	1	139,000	139,000		x					x							139,000				139,000	
Cloud Connect - TT6186NC Fire Eye Annual Maintenance	Cost Avoidance	Technical Services & Ntwkg	ANN	1	40,219	40,219			x	x	x	x	x		x	x	x	x		40,219	40,219	40,219	40,219	40,219	
Cloud Connect - TT6186NC Fire Eye Gigamon Cards	Cost Avoidance	Technical Services & Ntwkg	EA	1	20,000	20,000			x						x					20,000					
Cloud Connect - TT6186NC AT&T ISP Connection Services (2 Drivers @\$3,091.97 *12 months) (updated per AT&T email with revised rate)	Cost Avoidance	Technical Services & Ntwkg	ANN	12	6,184	74,207			x	x	x	x	x		x	x	x	x		74,207	74,207	74,207	74,207	74,207	
Cloud Connect - TT6186NC C1-ASR1001-HX/K9 Routers (2) Replacement at EOL 2021. (*Prices reflects an 66% discount per Presidio contract. \$307,000 Total List Price)	Cost Avoidance	Technical Services & Ntwkg	EA	2	52,190	104,380																	104,380		
Cloud Connect - TT6186NC C1-ASR1001-HX/K9 Routers Maintenance (2) at EOL 2021. (*Prices reflects a 40% discount with a 5yr Maintenance agreements per Presidio contract. \$28,568 Total List Price)	Cost Avoidance	Technical Services & Ntwkg	ANN	2	8,570	17,141																	17,141	17,141	
Cloud Connect - TT6186NC C1-ASR1001-HX/K9 Routers Advanced Enterprise License (2) at EOL 2021 - No discount	Cost Avoidance	Technical Services & Ntwkg	EA	2	8,325	16,650																	16,650		
Cloud Connect - TT6186NC SFP Module (8) (*Prices reflects an 80% discount per Presidio contract. \$5,600 Total List Price)	Cost Avoidance	Technical Services & Ntwkg	EA	8	140	1,120																	1,120		
Cloud Refresh - TT8186CR AWS billing costs avoided by acquiring Park My Cloud tool and enhancing spin up/spin down strategy	Cost Avoidance	Technical Services & Ntwkg	EA	12	3,851	46,212		x	x	x	x	x	x		x	x	x	x		46,212	46,212	46,212	46,212	46,212	
Cloud Program - TT6186CP 2 FX2s - Bubble capacity cost avoidance	Cost Avoidance	Technical Services & Ntwkg	EA	1	244,520	244,520		x							x					244,520				244,520	





Oakland County -- Cloud Program

Return on Investment Analysis

Savings Detail

Benefit/Savings Description	Project Savings Category	Budget Category/Funding Source	Unit Desc	Units	Rate per Unit	Total Savings	Annual Multiplier	Affects Project ROI?										Potential Savings Extensions								
								Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	Y1	Y2	Y3	Y4	Y5	Y6			
Cloud Refresh - Automation: At the end of Phase 2, server builds are scripted so the 8 hour task reduces to less than 1 per server so you save \$1176 per server build (but we cannot claim a hard dollar savings)	Cost Avoidance	Technical Services & Ntwkg	EA	1,464	147	215,208			x	x	x	x	x		x	x	x	x			215,208	215,208	215,208	215,208	215,208	215,208
<b>Cloud Program - TT6186CP</b> DB Expense Reductions - Having Cloud opens the possibility of exploring additional/less expensive DB options compared to Oracle and SQL. Today we spend about \$200,000 per year in SQL Licensing. (ITB)	Intangible Benefit	Technical Services & Ntwkg	EA																							
<b>Refresh -</b> Autoscaling: At the end of Phase 2, we will begin Autoscaling, which will further reduce costs but cannot be estimated until the end of that Phase	Intangible Benefit	Technical Services & Ntwkg	EA																							
<b>Cloud Program - TT6186CP</b> Improved citizen engagement models: It will empower us to use APIs and begin connecting disparate apps and giving a better citizen experience	Intangible Benefit	Technical Services & Ntwkg	EA																							
<b>Cloud Program - TT6186CP</b> In Cloud we have separation between dev/qa/prod as well as apps/DB/Management/Security Services. We do not have this on premise and the fix on premise is a network redesign or implement NSX on the VM Environment or Implement McAfee ENS Firewall	Intangible Benefit	Technical Services & Ntwkg	EA																							
<b>Cloud Program - TT6186CP</b> Containerization - With Cloud, we will be able to leverage containerization for custom built apps that are migrated	Intangible Benefit	Technical Services & Ntwkg	EA																							

**Oakland County -- Cloud Program**  
Return on Investment Analysis

Savings Detail

Benefit/Savings Description	Project Savings Category	Y7	Y8	Y9	Y10
Gain the understanding of cloud computing and infrastructures	Intangible Benefit				
Gain new and improved OC Cloud standards	Intangible Benefit				
Establish Goals and Objectives for Cloud implementations	Intangible Benefit				
Cloud Program - TT6186CP SQL License Cost Avoidance by reducing enterprise pricing @ renewal	Cost Avoidance	29,705	29,705	29,705	29,705
<b>Cloud AD - TT6186AD</b> Allows cloud connections for on-prem applications	Intangible Benefit				
Pay as you go servers and SAN	Intangible Benefit				
Deferral of Maintenance and Upgrades for Hardware and Storage to IAAS provider	Intangible Benefit				
Unlimited resource scalability for servers and storage	Intangible Benefit				
<b>Cloud Program - TT6186CP</b> Capital Equipment Plan Savings based on budget reductions.	Tangible Benefit				
Cloud Program - TT6186CP Intrusion Detection System with 24 by 7 monitoring by an outside firm.	Intangible Benefit				
Cloud Refresh - Separation of Dev/QA from production which increases the availability of production	Intangible Benefit				
<b>Cloud Connect - TT6186NC</b> Checkpoint allows greater functionality and capabilities than Fire Eye, including a single pane of glass, already supported in the environment, and minimal work to upgrade as opposed to procure and fully implementing a new solution.	Intangible Benefit				
<b>Cloud Connect - TT6186NC</b> Radware Infrastructure	Cost Avoidance	110,000			

**Oakland County -- Cloud Program**  
Return on Investment Analysis

Savings Detail

Benefit/Savings Description	Project Savings Category	Y7	Y8	Y9	Y10
<b>Cloud Connect - TT6186NC</b> Radware Maintenance	Cost Avoidance	7,400	7,400	7,400	7,400
<b>Cloud Connect - TT6186NC</b> Packetshaper Infrastructure	Cost Avoidance		150,000		
<b>Cloud Connect - TT6186NC</b> Packetshaper Maintenance	Cost Avoidance	15,803	15,803	15,803	15,803
<b>Cloud Connect - TT6186NC</b> Fire Eye Upgrade (10GB)	Cost Avoidance				
<b>Cloud Connect - TT6186NC</b> Fire Eye Annual Maintenance	Cost Avoidance	40,219	40,219	40,219	40,219
<b>Cloud Connect - TT6186NC</b> Fire Eye Gigamon Cards	Cost Avoidance	20,000			
<b>Cloud Connect - TT6186NC</b> <b>AT&amp;T ISP Connection Services (2 Drivers @ \$3,091.97 *12 months)</b> <i>(updated per AT&amp;T email with revised rate)</i>	Cost Avoidance	74,207	74,207	74,207	74,207
<b>Cloud Connect - TT6186NC</b> <b>C1-ASR1001-HX/K9 Routers (2) Replacement at EOL 2021.</b> <i>(*Prices reflects an 66% discount per Presidio contract. \$307,000 Total List Price)</i>	Cost Avoidance			104,380	
<b>Cloud Connect - TT6186NC</b> <b>C1-ASR1001-HX/K9 Routers Maintenance (2) at EOL 2021.</b> <i>(*Prices reflects a 40% discount with a 5yr Maintenance agreements per Presidio contract. \$28,568 Total List Price)</i>	Cost Avoidance	17,141	17,141	17,141	17,141
<b>Cloud Connect - TT6186NC</b> <b>C1-ASR1001-HX/K9 Routers Advanced Enterprise License (2) at EOL 2021 -</b> No discount	Cost Avoidance			16,650	
<b>Cloud Connect - TT6186NC</b> <b>SFP Module (8)</b> <i>(*Prices reflects an 80% discount per Presidio contract. \$5,600 Total List Price)</i>	Cost Avoidance			1,120	
<b>Cloud Refresh - TT8186CR</b> AWS billing costs avoided by acquiring Park My Cloud tool and enhancing spin up/spin down strategy	Cost Avoidance	46,212	46,212	46,212	46,212
<b>Cloud Program - TT6186CP</b> 2 FX2s - Bubble capacity cost avoidance	Cost Avoidance		244,520		

**Oakland County -- Cloud Program**  
Return on Investment Analysis

Savings Detail

Benefit/Savings Description	Project Savings Category	Y7	Y8	Y9	Y10
Cloud Program - TT6186CP SSD and additional disk- Bubble capacity cost avoidance	Cost Avoidance				
Cloud Program - TT6186CP Y1 - 2 Microsoft Server License - Bubble capacity & data center cost avoidance	Cost Avoidance				
Cloud Program - TT6186CP Y3 - 10 Microsoft Server License - Bubble capacity & data center cost avoidance	Cost Avoidance	83,544	83,544	83,544	83,544
Cloud Program - TT6186CP Backup (Avamar) - License bubble capacity cost avoidance	Cost Avoidance		16,380		
Cloud Program - TT6186CP VM Ware License - Bubble capacity cost avoidance	Cost Avoidance	134,064		134,064	134,064
Cloud Program - TT6186CP LaserFiche (Imaging) Offset	Tangible Benefit				
Cloud Program - TT6186CP Oracle License for Clarity	Intangible Benefit				
Cloud Program - TT6186CP Storage Gateway Savings Vignette	Intangible Benefit				
Cloud Program - TT6186CP Oracle Upgrade for Clarity	Intangible Benefit				
Cloud Program - TT6186CP Y1 - 2 Power costs of the bubble hardware	Tangible Benefit				
Cloud Program - TT6186CP Y3 - 10 Power costs of the bubble hardware	Tangible Benefit	26,000	26,000	26,000	26,000
Cloud Program - TT6186CP Resiliency - Improved resiliency by the cloud model vs our two data centers	Intangible Benefit				
Cloud Program - TT6186CP Improved DR on premise in a full disaster we run in a degraded state	Intangible Benefit				
Cloud Program - TT6186CP Nimbleness (e.g.(Clarity Oracle started working in the new environment in days	Intangible Benefit				

**Oakland County -- Cloud Program**  
Return on Investment Analysis

Savings Detail

Benefit/Savings Description	Project Savings Category	Y7	Y8	Y9	Y10
Cloud Refresh - Automation: At the end of Phase 2, server builds are scripted so the 8 hour task reduces to less than 1 per server so you save \$1176 per server build (but we cannot claim a hard dollar savings)	Cost Avoidance	215,208	215,208	215,208	215,208
<b>Cloud Program - TT6186CP</b> DB Expense Reductions - Having Cloud opens the possibility of exploring additional/less expensive DB options compared to Oracle and SQL. Today we spend about \$200,000 per year in SQL Licensing. (ITB)	Intangible Benefit				
<b>Refresh -</b> Autoscaling: At the end of Phase 2, we will begin Autoscaling, which will further reduce costs but cannot be estimated until the end of that Phase	Intangible Benefit				
<b>Cloud Program - TT6186CP</b> Improved citizen engagement models: It will empower us to use APIs and begin connecting disparate apps and giving a better citizen experience	Intangible Benefit				
<b>Cloud Program - TT6186CP</b> In Cloud we have separation between dev/qa/prod as well as apps/DB/Management/Security Services. We do not have this on premise and the fix on premise is a network redesign or implement NSX on the VM Environment or Implement McAfee ENS Firewall	Intangible Benefit				
<b>Cloud Program - TT6186CP</b> Containerization - With Cloud, we will be able to leverage containerization for custom built apps that are migrated	Intangible Benefit				

**Oakland County -- Cloud Program**  
Return on Investment Analysis

Savings Summary

Benefit/Savings Description	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Total
<b>Tangible Benefit:</b>											
Cloud Program - TT6186CP Capital Equipment Plan Savings based on budget reductions.	290,000	0	686,000	156,000	0	0	0	0	0	0	1,132,000
Cloud Program - TT6186CP Y1 - 2 Power costs of the bubble hardware	13,000	13,000	0	0	0	0	0	0	0	0	26,000
Cloud Program - TT6186CP Y3 - 10 Power costs of the bubble hardware	0	0	26,000	26,000	26,000	26,000	26,000	26,000	26,000	26,000	208,000
Cloud Program - TT6186CP LaserFiche (Imaging) Offset	0	0	0	0	0	0	0	0	0	0	0
Cloud Program - TT6186CP Oracle License for Clarity	0	0	0	0	0	0	0	0	0	0	0
Cloud Program - TT6186CP Storage Gateway Savings Vignette	0	0	0	0	0	0	0	0	0	0	0
Cloud Program - TT6186CP Oracle Upgrade for Clarity	0	0	0	0	0	0	0	0	0	0	0
<i>Tangible Benefits Subtotal:</i>	<b>303,000</b>	<b>13,000</b>	<b>712,000</b>	<b>182,000</b>	<b>26,000</b>	<b>26,000</b>	<b>26,000</b>	<b>26,000</b>	<b>26,000</b>	<b>26,000</b>	<b>1,366,000</b>
<b>Cost Avoidance:</b>											
Cloud Refresh - TT8186CR AWS billing costs avoided by acquiring Park My Cloud tool and enhancing spin up/spin down strategy	46,212	46,212	46,212	46,212	46,212	46,212	46,212	46,212	46,212	46,212	462,118
Cloud Program - TT6186CP 2 FX2s - Bubble capacity cost avoidance	244,520	0	244,520	0	0	244,520	0	244,520	0	0	978,080
Cloud Program - TT6186CP SSD and additional disk- Bubble capacity cost avoidance	236,248	0	0	0	0	236,248	0	0	0	0	472,496

**Oakland County -- Cloud Program**  
Return on Investment Analysis

Savings Summary

Benefit/Savings Description	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Total
Cloud Program - TT6186CP Y1 - 2 Microsoft Server License - Bubble capacity & data center cost avoidance	41,772	41,772	0	0	0	0	0	0	0	0	83,544
Cloud Program - TT6186CP Y3 - 10 Microsoft Server License - Bubble capacity & data center cost avoidance	0	0	83,544	83,544	83,544	83,544	83,544	83,544	83,544	83,544	668,352
Cloud Program - TT6186CP Backup (Avamar) - License bubble capacity cost avoidance	16,380	0	16,380	0	0	16,380	0	16,380	0	0	65,520
Cloud Program - TT6186CP VM Ware License - Bubble capacity cost avoidance	134,064	0	134,064	134,064	0	134,064	134,064	0	134,064	134,064	938,448
Cloud Connect - TT6186NC Radware Infrastructure	0	110,000	0	0	0	0	110,000	0	0	0	220,000
Cloud Connect - TT6186NC Radware Maintenance	0	7,400	7,400	7,400	7,400	7,400	7,400	7,400	7,400	7,400	66,600
Cloud Connect - TT6186NC Packetshaper Infrastructure	0	0	150,000	0	0	0	0	150,000	0	0	300,000
Cloud Connect - TT6186NC Packetshaper Maintenance	0	15,803	15,803	15,803	15,803	15,803	15,803	15,803	15,803	15,803	142,227
Cloud Connect - TT6186NC Fire Eye Upgrade (10GB)	139,000	0	0	0	0	139,000	0	0	0	0	278,000
Cloud Connect - TT6186NC Fire Eye Annual Maintenance	0	40,219	40,219	40,219	40,219	40,219	40,219	40,219	40,219	40,219	361,971
Cloud Connect - TT6186NC Fire Eye Gigamon Cards	0	20,000	0	0	0	0	20,000	0	0	0	40,000
Cloud Connect - TT6186NC AT&T ISP Connection Services (2 Drivers @ \$3,091.97 *12 months) (updated per AT&T email with revised rate)	0	74,207	74,207	74,207	74,207	74,207	74,207	74,207	74,207	74,207	667,866
Cloud Connect - TT6186NC C1-ASR1001-HX/K9 Routers (2) Replacement at EOL 2021. (*Prices reflects an 66% discount per Presidio contract. \$307,000 Total List Price)	0	0	0	104,380	0	0	0	0	104,380	0	208,760



**Oakland County -- Cloud Program**  
Return on Investment Analysis

Savings Summary

Benefit/Savings Description	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Total
Cloud Connect - TT6186NC C1-ASR1001-HX/K9 Routers Maintenance (2) at EOL 2021. (*Prices reflects a 40% discount with a 5yr Maintenance agreements per Presidio contract. \$28,568 Total List Price)	0	0	0	17,141	17,141	17,141	17,141	17,141	17,141	17,141	119,986
Cloud Connect - TT6186NC C1-ASR1001-HX/K9 Routers Advanced Enterprise License (2) at EOL 2021 - No discount	0	0	0	16,650	0	0	0	0	16,650	0	33,300
Cloud Connect - TT6186NC SFP Module (8) (*Prices reflects an 80% discount per Presidio contract. \$5,600 Total List Price)	0	0	0	1,120	0	0	0	0	1,120	0	2,240
Cloud Program - TT6186CP SQL License Cost Avoidance by reducing enterprise pricing @ renewal	0	0	29,705	29,705	29,705	29,705	29,705	29,705	29,705	29,705	237,640
Cloud Refresh - Automation: At the end of Phase 2, server builds are scripted so the 8 hour task reduces to less than 1 per server so you save \$1176 per server build (but we cannot claim a hard dollar savings)	0	215,208	215,208	215,208	215,208	215,208	215,208	215,208	215,208	215,208	1,936,872
<b>Cost Avoidance Subtotal:</b>	<b>858,196</b>	<b>570,821</b>	<b>1,057,262</b>	<b>785,653</b>	<b>529,439</b>	<b>1,299,651</b>	<b>793,503</b>	<b>940,339</b>	<b>785,653</b>	<b>663,503</b>	<b>8,284,019</b>
<b>Intangible Benefit:</b>											
Gain the understanding of cloud computing and infrastructures											
Gain new and improved OC Cloud standards											
Establish Goals and Objectives for Cloud implementations											

**Oakland County -- Cloud Program**  
Return on Investment Analysis

Savings Summary

Benefit/Savings Description	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Total
Cloud Connect - TT6186NC Checkpoint allows greater functionality and capabilities than Fire Eye, including a single pane of glass, already supported in the environment, and minimal work to upgrade as opposed to procure and fully implementing a new solution.											
Cloud AD - TT6186AD Allows cloud connections for on-prem applications											
Pay as you go servers and SAN											
Deferral of Maintenance and Upgrades for Hardware and Storage to IAAS provider											
Unlimited resource scalability for servers and storage											
Cloud Program - TT6186CP Intrusion Detection System with 24 by 7 monitoring by an outside firm.											
Cloud Refresh - Separation of Dev/QA from production which increases the availability of production											
0											
Cloud Program - TT6186CP Resiliency - Improved resiliency by the cloud model vs our two data centers											
Cloud Program - TT6186CP Improved DR on premise in a full disaster we run in a degraded state											
Cloud Program - TT6186CP Nimbleness (e.g.(Clarity Oracle started working in the new environment in days											

**Oakland County -- Cloud Program**  
Return on Investment Analysis

Savings Summary

Benefit/Savings Description	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Total
Cloud Program - TT6186CP DB Expense Reductions - Having Cloud opens the possibility of exploring additional/less expensive DB options compared to Oracle and SQL. Today we spend about \$200,000 per year in SQL Licensing. (ITB)											
Refresh - Autoscaling: At the end of Phase 2, we will begin Autoscaling, which will further reduce costs but cannot be estimated until the end of that Phase											
Cloud Program - TT6186CP Improved citizen engagement models: It will empower us to use APIs and begin connecting disparate apps and giving a better citizen experience											
Cloud Program - TT6186CP In Cloud we have separation between dev/qa/prod as well as apps/DB/Mangement/Security Services. We do not have this on premise and the fix on premise is a network redesign or implement NSX on the VM Environment or Implement McAfee ENS Firewall											
Cloud Program - TT6186CP Containerization - With Cloud, we will be able to leverage containerization for custom built apps that are migrated											
<b>Savings Total:</b>	<b>1,161,196</b>	<b>583,821</b>	<b>1,769,262</b>	<b>967,653</b>	<b>555,439</b>	<b>1,325,651</b>	<b>819,503</b>	<b>966,339</b>	<b>811,653</b>	<b>689,503</b>	<b>9,650,019</b>

**Oakland County -- Cloud Program**  
Return on Investment Analysis

Cost Detail

Cost Description	Project Cost Category	Budget Category/Funding Source	Unit Desc	Units	Rate per Unit	Total Cost	Annual Multiplier	Affects Project ROI?										Potential Cost Extensions								
								Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	Y1 (2018)	Y2 (2019)	Y3 (2020)	Y4	Y5	Y6			
Cloud Infrastructure Optimization - TT6186CO IT Hours - New Development	Development Svcs	Technical Services & Ntwkg	EA	899	125	112,178		x													112,178					
Cloud Infrastructure Optimization - TT6186CO Professional Services (Coalfire/Strategic Solutions)	Development Svcs	Technical Services & Ntwkg	EA	1	52,000	52,000		x													52,000					
Program Management - TT6186PM IT Hours - New Development	Development Svcs	Technical Services & Ntwkg	EA	1,242	103	128,153		x													128,153					
Cloud AD - TT6186AD IT Hours - New Development	Development Svcs	Technical Services & Ntwkg	EA	1,326	76	100,544		x													100,544					
Cloud AD - TT6186AD Professional Services (Turing Group/Strategic Solutions)	Development Svcs	Technical Services & Ntwkg	EA	1	56,852	56,852		x													56,852					
Streams - TT8186CS IT Hours - New Development	Development Svcs	Technical Services & Ntwkg	EA	455	116	52,979		x													52,979					
Cloud 1.0 Foundation - TT8186C1 IT Hours - New Development	Development Svcs	Technical Services & Ntwkg	EA	154	117	17,963		x													17,963					
Cloud Refresh (Phase I YEAR 1) - TT8186CR IT Hours - New Development	Development Svcs	Technical Services & Ntwkg	EA	1,122	122	137,347		x													137,347					
Cloud Refresh (Phase I YEAR 2) - TT8186CR IT Hours - New Development	Development Svcs	Technical Services & Ntwkg	EA	89	147	13,046			x													13,046				
Cloud Optimization - TT9186CO IT Hours - New Development	Development Svcs	Technical Services & Ntwkg	EA	250	148	36,891			x	x												36,891	36,891			
Cloud Program - TT6186CP Y1 Hardware & Liscensing footprint (QA,Prod, Dev) supporting Alert Logic, CAMS, Checkpoint, GIS, Clarity,eLearning, LaserFiche, Neptune, NGINX	Hardware	Technical Services	EA	1	332,209	332,209		x													332,209					
Cloud Program - TT6186CP Y2 - 10 Hardware & Liscensing footprint (QA,Prod, Dev) supporting Alert Logic, CAMS, Checkpoint, GIS, Clarity,eLearning, LaserFiche, Neptune, NGINX	Hardware	Technical Services & Ntwkg	EA	1	117,942	117,942			x	x	x	x	x	x	x	x	x	x	x	x		117,942	117,942	117,942	117,942	117,942
Cloud Program Streams costs for CAMS @ 35% utilization	Software	Technical Services & Ntwkg	EA	1	4,236	4,236		x	x	x	x	x	x	x	x	x	x	x	x	x	4,236	4,236	4,236	4,236	4,236	4,236
Cloud Program - TT6186CP Disk Storage	Hardware	Technical Services &	EA	1	180,000	180,000		x	x	x	x	x	x	x	x	x	x	x	x	x	180,000	180,000	180,000	180,000	180,000	180,000
Cloud Refresh (Phase I) - TT8186CR Professional Services (TBD)	Development Svcs	Technical Services & Ntwkg	EA	1	144,000	144,000		x													144,000					

**Oakland County -- Cloud Program**  
Return on Investment Analysis

Cost Detail

Cost Description	Project Cost Category	Budget Category/Funding Source	Unit Desc	Units	Rate per Unit	Total Cost	Annual Multiplier	Affects Project ROI?											Potential Cost Extensions					
								Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	Y1 (2018)	Y2 (2019)	Y3 (2020)	Y4	Y5	Y6	
<b>Cloud Connect - TT6186NC</b> <b>IT Labor - Implementation (Actuals)</b>	Development Svcs	Technical Services & Ntwkg	EA	276	110	30,432	x																	
<b>Cloud Connect - TT6186NC</b> <b>IT Labor - Implementation (Future ETC)</b>	Development Svcs	Technical Services & Ntwkg	EA	928	147	136,416	x																	
<b>Cloud Connect - TT6186NC</b> <b>AT&amp;T ISP Connection Services (2 Drivers @ \$4,894.36 * 12 months) (updated per AT&amp;T /Renee's email with revised rate)</b>	Infrastructure	Technical Services & Ntwkg	ANN	12	9,789	117,465	x	x	x	x	x	x	x	x	x	x	x	117,465	117,465	117,465	117,465	117,465	117,465	
<b>Cloud Connect - TT6186NC</b> <b>Windstream Direct Connection Services - (1G @ each site = 2@ \$1,610 = \$3,220 x 12mths)</b>	Infrastructure	Technical Services & Ntwkg	ANN	12	3,220	38,640	x	x	x	x	x	x	x	x	x	x	x	38,640	38,640	38,640	38,640	38,640	38,640	
<b>Cloud Connect - TT6186NC</b> <b>AWS (Amazon)10GB Connection Services \$0.30/hr ; \$2,628x2= \$5,256/year (note: X 2 redundant connections = \$39,420/year)</b>	Infrastructure	Technical Services & Ntwkg	ANN	2	2,628	5,256	x	x	x	x	x	x	x	x	x	x	x	5,256	5,256	5,256	5,256	5,256	5,256	
<b>Cloud Connect - TT6186NC</b> <b>CISCO ASR1002-HX WAN Routers (2) (*Prices reflects an 66% discount per Presidio contract. \$346,000 Total List Price)</b>	Hardware	Technical Services & Ntwkg	EA	2	76,120	152,240	x					x						152,240						
<b>Cloud Connect - TT6186NC</b> <b>CISCO ASR1002-HX WAN Routers (2) Maintenance (*Prices reflects an 40% discount with a 5yr Maintenance agreements per Presidio contract. Total List price \$49,459)</b>	Software	Technical Services & Ntwkg	ANN	2	14,837	29,674	x	x	x	x	x	x	x	x	x	x	x	29,674	29,674	29,674	29,674	29,674	29,674	
<b>Cloud Connect - TT6186NC</b> <b>CISCO ASR1006-X WAN Routers (2) Advanced Enterprise License - No discount</b>	Software	Technical Services & Ntwkg	ANN	2	12,500	25,000	x											25,000						
<b>Cloud Connect - TT6186NC</b> <b>CISCO SFP (8) (*Prices reflects an 80% discount per Presidio contract. \$5,600 Total List Price)</b>	Hardware	Technical Services & Ntwkg	EA	8	140	1,120	x											1,120						
<b>Cloud Connect - TT6186NC</b> <b>WAN Routers Professional Services - ASR1006-X (No discount)</b>	Development Svcs	Technical Services & Ntwkg	EA	1	65,000	65,000	x											65,000						
<b>Cloud Connect - TT6186NC</b> <b>CheckPoint SFP+ transceiver for 10G fiber Ports - short range (10GBase-SR)</b>	Hardware	Technical Services & Ntwkg	EA	8	797	6,376		x											6,376					

**Oakland County -- Cloud Program**  
Return on Investment Analysis

Cost Detail

Cost Description	Project Cost Category	Budget Category/Funding Source	Unit Desc	Units	Rate per Unit	Total Cost	Annual Multiplier	Affects Project ROI?										Potential Cost Extensions								
								Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	Y1 (2018)	Y2 (2019)	Y3 (2020)	Y4	Y5	Y6			
<b>Cloud Connect - TT6186NC</b> Check Point SFP+ interface card - 4 Port 10GBase. Requires an additional 10GBase SFP+ transceiver per interface port.	Hardware	Technical Services & Ntwkg	EA	2	15,144	30,288			x																	
<b>Cloud Connect - TT6186NC</b> Check Point Direct Enterprise Premium Support - Licenses	Software	Technical Services & Ntwkg	EA	1	8,151	8,151			x																	
<b>Cloud Connect - TT6186NC</b> CheckPoint SFP Shipping Charge	Other	Technical Services & Ntwkg	EA	1	248	248			x																	
<b>Cloud Connect - TT6186NC</b> CheckPoint Appliance CPAP-SBTE2000X-40VM - SandBlast TE Appliance TE2000X (*Prices reflects an 30% discount per Optiv contact. \$179,000 Total List Price)	Infrastructure	Technical Services & Ntwkg	EA	1	125,300	125,300		x																		
<b>Cloud Connect - TT6186NC</b> CheckPoint Appliance Licenses (*Prices reflects an estimated 20% of hardware cost))	Software	Technical Services & Ntwkg	ANN	1	25,000	25,000		x	x	x	x	x	x	x	x	x	x	x	x	x	25,000	25,000	25,000	25,000	25,000	25,000
<b>Cloud DNS - TT8186DN</b> IT Labor - Implementation	Development Svcs	Technical Services & Ntwkg	ANN	508	123	62,478		x													62,478					
<b>Cloud DNS - TT8186DN</b> AWS Services for DNS	Infrastructure	Technical Services & Ntwkg	ANN	10	10	100		x	x	x	x	x	x	x	x	x	x	x	x	x	100	100	100	100	100	100
<b>Cloud Program - TT6186CP</b> Cloud Tools (Park My Cloud, Check Point, Alert Logic)	Software	Technical Services & Ntwkg	EA	12	8,300	99,600		x	x	x	x	x	x	x	x	x	x	x	x	x	99,600	99,600	99,600	99,600	99,600	99,600
<b>Cloud Program - TT6186CP</b> Cloud Strategic Bill - YR 1	Software	Technical Services & Ntwkg	EA	1	156,731	156,731		x													156,731					
<b>Cloud Program - TT6186CP</b> Cloud Strategic Bill - YR 2-6	Software	Technical Services & Ntwkg	EA	1	115,593	115,593			x	x	x	x	x	x	x	x	x	x	x	x		115,593	115,593	115,593	115,593	115,593
<b>Program Management (19/20) - TT9186CP</b> IT Hours - New Development	Development Svcs	Technical Services & Ntwkg	HR	900	144	129,189			x	x													129,189	129,189		

**Oakland County -- Cloud Program**  
Return on Investment Analysis

Cost Detail

Cost Description	Project Cost Category	Y7	Y8	Y9	Y10
<b>Cloud Infrastructure Optimization - TT6186CO</b> IT Hours - New Development	Development Svcs				
<b>Cloud Infrastructure Optimization - TT6186CO</b> Professional Services (Coalfire/Strategic Solutions)	Development Svcs				
<b>Program Management - TT6186PM</b> IT Hours - New Development	Development Svcs				
<b>Cloud AD - TT6186AD</b> IT Hours - New Development	Development Svcs				
<b>Cloud AD - TT6186AD</b> Professional Services (Turing Group/Strategic Solutions)	Development Svcs				
<b>Streams - TT8186CS</b> IT Hours - New Development	Development Svcs				
<b>Cloud 1.0 Foundation - TT8186C1</b> IT Hours - New Development	Development Svcs				
<b>Cloud Refresh (Phase I YEAR 1) - TT8186CR</b> IT Hours - New Development	Development Svcs				
<b>Cloud Refresh (Phase I YEAR 2) - TT8186CR</b> IT Hours - New Development	Development Svcs				
<b>Cloud Optimization - TT9186CO</b> IT Hours - New Development	Development Svcs				
<b>Cloud Program - TT6186CP</b> Y1 Hardware & Liscensing footprint (QA,Prod, Dev) supporting Alert Logic, CAMS, Checkpoint, GIS, Clarity,eLearning, LaserFiche, Neptune, NGINX	Hardware				
<b>Cloud Program - TT6186CP</b> Y2 - 10 Hardware & Liscensing footprint (QA,Prod, Dev) supporting Alert Logic, CAMS, Checkpoint, GIS, Clarity,eLearning, LaserFiche, Neptune, NGINX	Hardware	117,942	117,942	117,942	117,942
<b>Cloud Program</b> Streams costs for CAMS @ 35% utilization	Software	4,236	4,236	4,236	4,236
<b>Cloud Program - TT6186CP</b> Disk Storage	Hardware	180,000	180,000	180,000	180,000
<b>Cloud Refresh (Phase I) - TT8186CR</b> Professional Services (TBD)	Development Svcs				

**Oakland County -- Cloud Program**  
Return on Investment Analysis

Cost Detail

Cost Description	Project Cost Category	Y7	Y8	Y9	Y10
<b>Cloud Connect - TT6186NC</b> IT Labor - Implementation (Actuals)	Development Svcs				
<b>Cloud Connect - TT6186NC</b> IT Labor - Implementation (Future ETC)	Development Svcs				
<b>Cloud Connect - TT6186NC</b> AT&T ISP Connection Services (2 Drivers @ \$4,894.36 * 12 months) (updated per AT&T /Renee's email with revised rate)	Infrastructure	117,465	117,465	117,465	117,465
<b>Cloud Connect - TT6186NC</b> Windstream Direct Connection Services - (1G @ each site = 2@ \$1,610 = \$3,220 x 12mths)	Infrastructure	38,640	38,640	38,640	38,640
<b>Cloud Connect - TT6186NC</b> AWS (Amazon) 10GB Connection Services \$0.30/hr ; \$2,628x2= \$5,256/year (note: X 2 redundant connections = \$39,420/year)	Infrastructure	5,256	5,256	5,256	5,256
<b>Cloud Connect - TT6186NC</b> CISCO ASR1002-HX WAN Routers (2) (*Prices reflects an 66% discount per Presidio contract. \$346,000 Total List Price)	Hardware				
<b>Cloud Connect - TT6186NC</b> CISCO ASR1002-HX WAN Routers (2) Maintenance (*Prices reflects an 40% discount with a 5yr Maintenance agreements per Presidio contract. Total List price \$49,459)	Software	29,674	29,674	29,674	29,674
<b>Cloud Connect - TT6186NC</b> CISCO ASR1006-X WAN Routers (2) Advanced Enterprise License - No discount	Software				
<b>Cloud Connect - TT6186NC</b> CISCO SFP (8) (*Prices reflects an 80% discount per Presidio contract. \$5,600 Total List Price)	Hardware				
<b>Cloud Connect - TT6186NC</b> WAN Routers Professional Services - ASR1006-X (No discount)	Development Svcs				
<b>Cloud Connect - TT6186NC</b> CheckPoint SFP+ transceiver for 10G fiber Ports - short range (10GBase-SR)	Hardware	6,376			



**Oakland County -- Cloud Program**  
Return on Investment Analysis

Cost Detail

Cost Description	Project Cost Category	Y7	Y8	Y9	Y10
<b>Cloud Connect - TT6186NC</b> <b>Check Point SFP+ interface card</b> - 4 Port 10GBase. Requires an additional 10GBase SFP+ transceiver per interface port.	Hardware	30,288			
<b>Cloud Connect - TT6186NC</b> <b>Check Point Direct Enterprise Premium Support - Licenses</b>	Software	8,151			
<b>Cloud Connect - TT6186NC</b> <b>CheckPoint SFP Shipping Charge</b>	Other	248			
<b>Cloud Connect - TT6186NC</b> <b>CheckPoint Appliance CPAP-SBTE2000X-40VM - SandBlast TE Appliance TE2000X (*Prices reflects an 30% discount per Optiv contact. \$179,000 Total List Price)</b>	Infrastructure				
<b>Cloud Connect - TT6186NC</b> <b>CheckPoint Appliance Licenses (*Prices reflects an estimated 20% of hardware cost)</b>	Software	25,000	25,000	25,000	25,000
<b>Cloud DNS - TT8186DN</b> <b>IT Labor - Implementation</b>	Development Svcs				
<b>Cloud DNS - TT8186DN</b> <b>AWS Services for DNS</b>	Infrastructure	100	100	100	100
<b>Cloud Program - TT6186CP</b> <b>Cloud Tools (Park My Cloud, Check Point, Alert Logic)</b>	Software	99,600	99,600	99,600	99,600
<b>Cloud Program - TT6186CP</b> <b>Cloud Strategic Bill - YR 1</b>	Software				
<b>Cloud Program - TT6186CP</b> <b>Cloud Strategic Bill - YR 2-6</b>	Software	115,593	115,593	115,593	115,593
<b>Program Management (19/20) - TT9186CP</b> <b>IT Hours - New Development</b>	Development Svcs				

**Oakland County -- Cloud Program**  
Return on Investment Analysis

Cost Summary

Cost Description	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<b>Development Services:</b>						
Cloud Infrastructure Optimization - TT6186CO IT Hours - New Development	112,178					
Cloud Infrastructure Optimization - TT6186CO Professional Services (Coalfire/Strategic Solutions)	52,000					
Program Management - TT6186PM IT Hours - New Development	128,153					
Cloud AD - TT6186AD IT Hours - New Development	100,544					
Cloud AD - TT6186AD Professional Services (Turing Streams - TT8186CS IT Hours - New Development	56,852					
Cloud 1.0 Foundation - TT8186C1 IT Hours - New Development	52,979					
Cloud Refresh (Phase I YEAR 1) - TT8186CR	17,963					
Cloud Refresh (Phase I YEAR 2) - TT8186CR	137,347					
Cloud Optimization - TT9186CO IT Hours - New Development	0	13,046	0	0	0	0
Program Management (19/20) - TT9186CP IT Hours - New Development	0	36,891	36,891			
Program Management (19/20) - TT9186CP IT Hours - New Development	0	129,189	129,189	0	0	0
Cloud Refresh (Phase I) - TT8186CR Professional Services (TBD)	144,000	0	0	0	0	0

**Oakland County -- Cloud Program**  
Return on Investment Analysis

Cost Summary

Cost Description	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	0					
Cloud Connect - TT6186NC IT Labor - Implementation (Actuals)	30,432					
Cloud Connect - TT6186NC IT Labor - Implementation (Future ETC)	136,416					
Cloud Connect - TT6186NC WAN Routers Professional Services -	65,000					
Cloud DNS - TT8186DN IT Labor - Implementation	62,478					
GovCloud - Checkpoint Implementation - TT8186CP	64,177					
<i>Development Services Subtotal:</i>	<b>1,160,519</b>	<b>179,126</b>	<b>166,080</b>			
<b>Hardware:</b>						
Cloud Program - TT6186CP Y1 Hardware & Liscensing footprint (QA,Prod, Dev) supporting Alert Logic, CAMS, Checkpoint, GIS, Clarity,eLearning, LaserFiche, Neptune, NGINX	332,209					
Cloud Program - TT6186CP Y2 - 10 Hardware & Liscensing footprint (QA,Prod, Dev) supporting Alert Logic, CAMS, Checkpoint, GIS, Clarity,eLearning, LaserFiche, Neptune, NGINX		117,942	117,942	117,942	117,942	117,942
Cloud Program Streams costs for CAMS @ 35% utilization	4,236	4,236	4,236	4,236	4,236	4,236
Cloud Program - TT6186CP Disk Storage	180,000	180,000	180,000	180,000	180,000	180,000
Cloud Connect - TT6186NC CISCO ASR1002-HX WAN Routers (2)	152,240					152,240

**Oakland County -- Cloud Program**  
Return on Investment Analysis

Cost Summary

Cost Description	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Cloud Connect - TT6186NC CISCO SFP (8) (*Prices reflects an 80% discount per Presidio contract. \$5,600 Total List Price)	1,120					1,120
Cloud Connect - TT6186NC CheckPoint Appliance CPAP-SBTE2000X-	125,300					
Cloud Connect - TT6186NC CheckPoint SFP+ transceiver for 10G fiber		6,376				
Cloud Connect - TT6186NC Check Point SFP+ interface card - 4 Port		30,288				
<i>Hardware Subtotal:</i>	<b>795,105</b>	<b>338,842</b>	<b>302,178</b>	<b>302,178</b>	<b>302,178</b>	<b>455,538</b>
<b>Software:</b>						
Cloud Program - TT6186CP Cloud Tools (Park My Cloud, Check Point, Alert Logic)	99,600	99,600	99,600	99,600	99,600	99,600
Cloud Program Streams costs for CAMS @ 35% utilization	4,236	4,236	4,236	4,236	4,236	4,236
Cloud Program - TT6186CP Cloud Strategic Bill - YR 1	156,731					
Cloud Program - TT6186CP Cloud Strategic Bill - YR 2-6		115,593	115,593	115,593	115,593	115,593
Cloud Connect - TT6186NC CISCO ASR1006-X WAN Routers (2) Advanced Enterprise License - No discount	25,000					
Cloud Connect - TT6186NC CISCO ASR1002-HX WAN Routers (2) Maintenance - (*Prices reflects an 40% discount with a 5yr Maintenance agreements per Presidio contract. Total List price \$49,459)	29,674	29,674	29,674	29,674	29,674	29,674

**Oakland County -- Cloud Program**

Return on Investment Analysis

Cost Summary

Cost Description	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Cloud Connect - TT6186NC Check Point Direct Enterprise Premium		8,151				
Cloud Connect - TT6186NC CheckPoint Appliance Licenses (*Prices	25,000	25,000	25,000	25,000	25,000	25,000
<i>Software Subtotal:</i>	<b>340,241</b>	<b>282,254</b>	<b>274,103</b>	<b>274,103</b>	<b>274,103</b>	<b>274,103</b>
<b>Infrastructure:</b>						
Cloud Connect - TT6186NC AT&T ISP Connection Services (2 Drivers	117,465	117,465	117,465	117,465	117,465	117,465
Cloud Connect - TT6186NC Windstream Direct Connection Services -	38,640	38,640	38,640	38,640	38,640	38,640
Cloud Connect - TT6186NC AWS (Amazon)10GB Connection Services	5,256	5,256	5,256	5,256	5,256	5,256
Cloud DNS - TT8186DN AWS Services for DNS	100	100	100	100	100	100
<i>Infrastructure Subtotal</i>	<b>161,461</b>	<b>161,461</b>	<b>161,461</b>	<b>161,461</b>	<b>161,461</b>	<b>161,461</b>
<b>Training:</b>						
<i>Training Subtotal:</i>						
<b>Other:</b>						
Cloud Connect - TT6186NC CheckPoint SFP Shipping Charge		248				
<i>Other Subtotal:</i>		<b>248</b>				
<b>Costs Total:</b>	<b>2,457,325</b>	<b>961,931</b>	<b>903,822</b>	<b>737,742</b>	<b>737,742</b>	<b>891,102</b>

**Oakland County -- Cloud Program**  
Return on Investment Analysis

Cost Summary

Year 7	Year 8	Year 9	Year 10	Total
				112,178
				52,000
				128,153
				100,544
				56,852
				52,979
				17,963
				137,347
				13,046
				73,782
0				258,378
				144,000

**Oakland County -- Cloud Program**  
Return on Investment Analysis

Cost Summary

Year 7	Year 8	Year 9	Year 10	Total
				30,432
				136,416
				65,000
				62,478
				64,177
				<b>1,505,725</b>
				332,209
117,942	117,942	117,942	117,942	1,061,478
4,236	4,236	4,236	4,236	42,360
180,000	180,000	180,000	180,000	1,800,000
				304,480

**Oakland County -- Cloud Program**  
Return on Investment Analysis

Cost Summary

Year 7	Year 8	Year 9	Year 10	Total
				2,240
				125,300
6,376				12,753
30,288				60,575
<b>338,842</b>	<b>302,178</b>	<b>302,178</b>	<b>302,178</b>	<b>3,741,394</b>
99,600	99,600	99,600	99,600	996,000
4,236	4,236	4,236	4,236	42,360
				156,731
115,593	115,593	115,593	115,593	1,040,338
				25,000
29,674	29,674	29,674	29,674	296,740



**Oakland County -- Cloud Program**  
Return on Investment Analysis

Cost Summary

Year 7	Year 8	Year 9	Year 10	Total
8,151				16,302
25,000	25,000	25,000	25,000	250,000
<b>282,254</b>	<b>274,103</b>	<b>274,103</b>	<b>274,103</b>	2,823,471
117,465	117,465	117,465	117,465	1,174,646
38,640	38,640	38,640	38,640	386,400
5,256	5,256	5,256	5,256	52,560
100	100	100	100	1,000
<b>161,461</b>	<b>161,461</b>	<b>161,461</b>	<b>161,461</b>	<b>1,614,606</b>
248				<b>497</b>
<b>248</b>				<b>497</b>
<b>782,805</b>	<b>737,742</b>	<b>737,742</b>	<b>737,742</b>	<b>9,685,693</b>

**Oakland County -- Cloud Program**  
Return on Investment Analysis

Assumptions

Date	Project	Assumption Description
22-Mar-17	AD - TT6186AD	Consulting services from Strategic will be leveraged and funding will be available.
25-Mar-17	Program	Subsequent phases will include additional scope and leverage the remaining ETC.
14-Dec-17	Program Management	Support and enhancement efforts <200hrs are listed as tasks and managed under the Cloud Program labor costs.
08-Feb-18	Network Connect	The Cloud Network Connect project is only sized through Design and RFP process. The labor and equipment costs have not estimated for implementation.
22-Feb-18	Refresh	Year 1 assumes no spin up and spin down, and reserved instances. Year 2 assumes a greater amount of spin up and spin down and reserved instance for the apps.
22-Feb-18	Refresh	No backup/storage estimates or DR costs included
22-Feb-18	Refresh	DR must be manually failed over. This will require pre-configuring fail over environment in another AWS datacenter
22-Feb-18	Program	Excluded is the shared stewardship (Labor) costs, because they are the same across the board for physical and virtual servers.
10-Apr-18	Program	Apps In Scope: Clarity, CAMs, Imaging, Neptune, eLearning, GIS
10-Apr-18	Program	Costs In Scope (for the 6 Apps): Strategic, Licenses, AWS Server Costs, AWS DB Costs
10-Apr-18	Program	Infrastructure In Scope (for Apps In Scope): Cloud AD, Streams, Refresh (Phase I), Optimization (Refresh Phase II), Security/Cloud Tools
10-Apr-18	Program	Scope assumptions are based on the Coal Fire validated design approved by OA
10-Apr-18	Program	VM Capacity Bubble estimates were based upon the technology and environment configuration available when the specific project was scheduled to be executed.
10-Apr-18	Network Connect	ROI In Scope: Network Connect cost and savings (incl direct connect, upgraded internet)
16-Apr-18	DNS	ROI In Scope: Public DNS to Cloud because Network Connect benefits are not realized unless this is completed
10-Apr-18	Program	Billing, including offsets are in scope for the ROI
10-Apr-18	Refresh	Out of Scope: New Tools, Dev time for the 6, PCI Zone, WatchGuard, All CJIS, Any new systems brought in after 4/10, changes to existing (approved) cloud design
26-Apr-18	Program	Server build cycle time efficiencies will be realized by the Server Admin team in the future and will result in improved time to market/completion
08-Feb-18	Network Connect	The Cloud Network Connect project is only sized through Design and RFP process. The labor and equipment costs have not estimated for implementation.
21-Feb-18	Network Connect	All other Cloud projects are managed under the Cloud Program.
02-Mar-18	Network Connect	Checkpoint allows greater functionality and capabilities than Fire Eye, including a single pane of glass, already supported in the environment, and minimal work to upgrade as opposed to fully implementing a new solution.
05-Mar-18	Network Connect	CISCO products (ASR WAN Router) price in the 'Cost Detail' reflects a 66% discount based on current Presidio agreement.
05-Mar-18	Network Connect	CISCO maintenance price in the 'Cost Detail' reflects a 40% discount per Guy Compton.
05-Mar-18	Network Connect	AWS Connection cost is based on 10GB connection. The only option less than 10GB is a 1GB connection option: 1GB Connection \$0.30/hr = \$2,628/year x 2 redundant connections = \$5,256/year.
17-Apr-18	Refresh	Consulting Services will be used when practical.
20-Apr-18	Refresh	Environments are priced with the assumption that dev and QA is shut down 108 out of the 168 hours in a week (a pay for what you use model and estimated for what we use and turning stuff off when not in use
23-Apr-18	Refresh	CheckPoint numbers for redesign are <b>not</b> included