

Oakland County Department of Information Technology Project Scope and Approach

Project Name: Server Virtualization/Consolidation Implementation Project ID: T69186VC

Leadership Group: Information Technology Steering Committee				
Department: Information Technology			Division: Technical Systems and Networking	
Project Sponsor: David Veit		Date Requested: 6/02/09		PM Customer No. 186
Request Type: New Development				
IT Team Name: Server Administration			IT Team No: 6	
Project Manager/Leader: Mahesh Parab				
Account Number: 17030	Account Description:	Technical Systems and Networking	Customer Name:	Information Technology
Grant Funded? No		Mandate?	No	
		Mandate Source:		

Project Goal

To virtualize and consolidate servers so that server Total Cost of Owner (TCO), support, and recovery is improved.

Business Objective

To perform project management activities, so that project execution is timely with appropriate quality and cost controls.

Major Deliverables

This Business Objective's deliverables are organized into one project phase: Project Management.

Project Management Phase:

- Updated Project Plan
- Project Issues Log
- Project Scope Management Log

Approach

To utilize Technical Systems and Networking staff to perform the following activities:

- Develop Initial Project Documents, and
- Develop and Maintain Project Data.

IT management will provide expertise and approval of project documentation requiring management approval.

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Business Objective

Implement Virtualized environment at IT Datacenter and South Oakland Datacenter.

Major Deliverables

- 10G Link between Oakland County Campus (OC Campus) and South Oakland.
- SAN Installation at Oakland and South Oakland.
- Decommission existing SAN.
- Expand VM Server farm (procurement and installation).
- VM Server Migration to new SAN.
- Windows Server Migration to new SAN.
- Move Test/DEV/QA to 64 Bit Environment.

Approach

- Network Services team will install 10G link between Oakland County Campus (OC Campus) and South Oakland.
- Server Administration team will install and configure various components of virtual environment at Oakland County Campus (OC Campus) and South Oakland.

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Business Objective

To Consolidate of Databases in current IT environment.

Major Deliverables

- Consolidated SQL2000 Environment.
- Consolidated SQL2005 Environment.
- SQL 2008 Environment.
- Consolidated Oracle 9i Environment.
- Consolidated Oracle 10g Environment.
- Oracle 11g Environment.

Approach

- Server Administration team will build the infrastructure for in scope SQL and Oracle servers.
- Database Administration team will install database, create instances for the Databases.
- Database Administration team will consolidate the databases associated with various applications in scope in the new database environment.
- Application Services teams will verify the consolidation to new environment by appropriate testing.

Business Objective

To migrate 135 applications, in Physical Server Environment to Virtual Server Environment.

Major Deliverables

- Applications migrated to virtual environment.
- Guideline for application migration from Physical servers to virtual servers.
- Guidelines for new application deployment in Virtualized environment

Approach

- Server Admin team will use P2V conversion to migrate application from physical environment to virtual.
- Application Services team will test the application in virtual environment.
- Server Admin team will develop guidelines for new application deployment in Virtualized environment.

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Benefits

See Return on Investment (ROI) Analysis Document

Intangible

Improved Service

- None identified.

Product/Service Accuracy

-

Product/Service Productivity

- None identified.

Impact

Number of Users All

Divisions All

Leadership Groups All

Risk

Business Environment **Medium** project will require some changes 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	Phil Bertolini	As needed.

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Facilities

- None identified.

Funding

- Information Technology

Technical

- Installation of 10G Link between OCC and South Oakland will require all core network and server switches to be restarted, resulting in temporary outage.
- Estimates for certification/testing of applications migrated to virtual environment are based on inputs of Technical Architect.
- Estimates for certification/testing of applications after databases are consolidated are based on inputs of Technical Architect.
- Estimates for Database Consolidation include all the databases in current environment (CLEMIS, Non-CLEMIS, COTS and In-House).

SQL Server			
	SQL Server 2000	SQL Server 2005	SQL Server 2008
CLEMIS Dev/QA (cots)	26	10	
CLEMIS Dev/QA (In-house Development)	5	4	
CLEMIS Production (cots)	62	10	
CLEMIS Production (In-house Development))	7	7	
Non CLEMIS Dev/QA (cots)	5	80	
Non CLEMIS Dev/QA (In-house Development)		76	
Non CLEMIS Production (cots)	7	61	
Non CLEMIS Production (In-house Development))		54	
Total Databases	112	302	

Oracle RDBMS			
	Oracle 9i	Oracle 10g	Oracle 11g
CLEMIS Production (cots)	1		
CLEMIS Production (In-house Development))			

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Oracle RDBMS			
CLEMIS Dev/QA (cots)	2		
CLEMIS Dev/QA (In-house Development)			
Non CLEMIS Production (cots)	5	4	
Non CLEMIS Production (In-house Development))			11
Non CLEMIS Dev/QA (cots)	4	6	
Non CLEMIS Dev/QA (In-house Development)			15
Total Databases	12	36	

Exclusions

- Preparation of South Oakland for SAN Build (e.g. APC, Cooling, and Electrical) is not in scope.
- Current environment doesn't have SQL 2008, Oracle 11g Databases; therefore not considered in scope for consolidation.
- Retiring Old Database servers in not in scope of Database consolidation.

Other

Priority

Constraints

- None identified.

Exclusions

- None identified.

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PROJECT PHASE AUTHORIZATION

Phase(s): All		
Total Estimated Application Services	Hours: 1,059	Cost: \$129,198
Total Estimated Technical Systems	Hours: 7,565	Cost: \$734,684
Total Estimated CLEMIS	Hours: --	Cost: --
Total Estimated Internal Services	Hours: --	Cost: --
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: 8,624	Cost: \$863,882
Preliminary Estimated Development for Future Phases	Hours:	Cost:
Grand Total Estimated Development	Hours: 8,624	Cost: \$863,882

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PROJECT COMPLETION AUTHORIZATION

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

Server Virtualization/Consolidation Implementation - Size Estimate (+/- 10% to 50%)

Type	ID	Task Name	Estimated Hours	Estimated Cost	Estimate Notes
			1,985	\$242,170.	
3	000000	PROJECT ADMINISTRATION			
Phase	010000	Virtual Environment Setup - OCC, South Dakl	318	\$5,368.00	
Phase	020000	Database Consolidation	4,790	\$574,132.	Estimates includes consolidation of
Phase	030000	Application Migration to Virtual Environment	1,531	\$42,211.9	135 Physical Servers to be Virtualized
			8,624	\$863,881.	

T69186VC - Server Virtualization/Consolidation Implementation

3.1 - Provide an Enhanced Application Service Offering

- 3.1.1 - Increase application integration through web services
- 3.1.2 - Research and develop a Constituent Relationship Management (CRM) strategy
- 3.1.3 - Promote mobility and location integration in business applications
- 3.1.4 - Utilize ecommerce platform to offset costs and expand product offerings to customers
- 3.1.5 - Improve the quality, reliability and availability of all applications
- 3.1.6 - Increase the agility and responsiveness of business units by expanding customer analytics
- 3.1.7 - Leverage the County's Internet presence and portal as a branded consolidated point of access to all County information and services through a web browser
- 3.1.8 - Centralize identity and access management for all applications and content

3.2 - Enhance ability to provide effective and timely customer (County departments and CVTs) service

- 3.2.1 - Implement a centralized service center strategy to provide a single point of contact for service delivery
- 3.2.2 - Implement the IT Infrastructure Library (ITIL) best practice framework for IT Service Management
- 3.2.3 - Define a service and support strategy that clearly identifies the IT service provided
- 3.2.4 - Provide a high-quality training program to empower employees through technology
- 3.2.5 - Develop a formalized customer communication plan
- 3.2.6 - Build IT Staff expertise through professional development
- 3.2.7 - Expand capacity through ongoing organizational review and selective outsourcing

3.3 - Implement a Standardized Infrastructure Strategy

- 3.3.1 - Deliver services using a shared technology infrastructure wherever possible
- 3.3.2 - Implement a Microsoft infrastructure strategy
- 3.3.3 - Implement a consolidated security strategy
- 3.3.4 - Establish a standard personal computing hardware and software product suite, SLA, and replacement schedule for all County personal computers
- 3.3.5 - Establish support cost model and SLA for all offerings outside 3.3.4
- 3.3.6 - Improve service availability through network design and management strategies
- 3.3.7 - Establish enhanced capacity planning and recovery management strategies

Oakland County -- Server Virtualization/Consolidation Implementation

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:	1,287,390	1,287,390	1,287,390	1,287,390	1,287,390	1,287,390	7,724,341
Cost Avoidance Subtotal:	0	0	0	0	0	0	0
Costs:							
Development Services Subtotal:	1,052,128	0	0	0	0	0	1,052,128
Hardware Subtotal:	0	0	0	0	0	0	0
Software Subtotal:	0	0	0	0	0	0	0
Infrastructure Subtotal:	677,718	677,718	677,718	677,718	677,718	677,718	4,066,310
Training Subtotal:	0	0	0	0	0	0	0
Other Subtotal:	0	0	0	0	0	0	0
Annual Statistics:							
Annual Total Savings	1,287,390	1,287,390	1,287,390	1,287,390	1,287,390	1,287,390	7,724,341
Annual Total Costs	1,729,846	677,718	677,718	677,718	677,718	677,718	5,118,438
Annual Return on Investment	(442,456)	609,672	609,672	609,672	609,672	609,672	2,605,902
Annual Costs/Savings Ratio	134.37%	52.64%	52.64%	52.64%	52.64%	52.64%	52.64%
Project Cumulative Statistics:							
Cumulative Total Savings	1,287,390	2,574,780	3,862,170	5,149,561	6,436,951	7,724,341	7,724,341
Cumulative Total Costs	1,729,846	2,407,565	3,085,283	3,763,001	4,440,720	5,118,438	5,118,438
Cumulative Return on Investment	(442,456)	167,216	776,887	1,386,559	1,996,231	2,605,902	2,605,902
Cumulative Cost/Savings Ratio	134.37%	93.51%	79.88%	73.07%	68.99%	66.26%	66.26%
Year Positive Payback Achieved		Year 2					Year 2
State or Federal Mandate?							
Signatures:							
Benefits Reviewed By Project Sponsor	Date: _____						
Costs (including IT Resources) Reviewed By Information Technology Project Manager	Date: _____						

Oakland County -- Server Virtualization/Consolidation Implementation

Return on Investment Analysis

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
Physical Servers - Reduction in annual acquisition/upgrade	Tangible Benefit	X	x	x	x	x	x	640,000.00	640,000.00	640,000.00	640,000.00	640,000.00	640,000.00
Annual Power Usage (Kwh) - Reduction by 420480 watts	Tangible Benefit	x	x	x	x	x	x	67,276.80	67,276.80	67,276.80	67,276.80	67,276.80	67,276.80
Windows Enterprise Licenses	Tangible Benefit	x	x	x	x	x	x	53,900.00	53,900.00	53,900.00	53,900.00	53,900.00	53,900.00
Windows Standard License	Tangible Benefit	x	x	x	x	x	x	12,480.00	12,480.00	12,480.00	12,480.00	12,480.00	12,480.00
SQL Server Enterprise	Tangible Benefit	x	x	x	x	x	x	108,000.00	108,000.00	108,000.00	108,000.00	108,000.00	108,000.00
SQL Server Standard	Tangible Benefit	x	x	x	x	x	x	57,000.00	57,000.00	57,000.00	57,000.00	57,000.00	57,000.00
Oracle Enterprise	Tangible Benefit	x	x	x	x	x	x	288,000.00	288,000.00	288,000.00	288,000.00	288,000.00	288,000.00
VM Platinum	Tangible Benefit	x	x	x	x	x	x	17,400.00	17,400.00	17,400.00	17,400.00	17,400.00	17,400.00
SAN	Tangible Benefit	x	x	x	x	x	x	43,333.33	43,333.33	43,333.33	43,333.33	43,333.33	43,333.33

Oakland County -- Server Virtualization/Consolidation Implementation

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?						
								Y1	Y2	Y3	Y4	Y5	Y6	
IT Hours - New Development	Development Svcs	17030 - Technical Systems and Networking		6,908	122	842,776		X						
IT Hours - New Development - CNT	Development Svcs	17030 - Technical Systems and Networking		1,144	122	139,568		x						
IT Hours - New Development - SCP	Development Svcs	17030 - Technical Systems and Networking		572	122	69,784		x						
Server - Acquisition/Upgrade	Infrastructure	17031 - Technical Systems and Networking	ANN	40	8,000	320,000		X	X	X	X	X	X	
Annual Power Usage (Kwh)	Infrastructure	17032 - Technical Systems and Networking	ANN	420,480	0.08	33,638		X	X	X	X	X	X	
Windows Data Center Licenses	Infrastructure	17033 - Technical Systems and Networking	ANN	12	425	5,100		X	X	X	X	X	X	
Windows Enterprise Licenses	Infrastructure	17034 - Technical Systems and Networking	ANN	108	385	41,580		X	X	X	X	X	X	
Windows Standard License	Infrastructure	17035 - Technical Systems and Networking	ANN	0	120	0		X	X	X	X	X	X	
SQL Server Enterprise	Infrastructure	17036 - Technical Systems and Networking	ANN	36	3,000	108,000		X	X	X	X	X	X	
SQL Server Standard	Infrastructure	17037 - Technical Systems and Networking	ANN	20	950	19,000		X	X	X	X	X	X	
Oracle Enterprise	Infrastructure	17038 - Technical Systems and Networking	ANN	16	6,000	96,000		X	X	X	X	X	X	
VM Platinum	Infrastructure	17039 - Technical Systems and Networking	ANN	12	1,450	17,400		X	X	X	X	X	X	
SAN - NS120	Infrastructure	17040 - Technical Systems and Networking	ANN	1	37,000	37,000		X	X	X	X	X	X	
MS SQL Server Enterprise Per Processor - Year 2 and Beyond	Infrastructure				3,939	0								
Websphere Basic Per Processor Single/Dual Core - Includes Year 1 Maintenance	Infrastructure				3,506	0								
Websphere Basic Per Processor Single/Dual Core - Year 2 and Beyond	Infrastructure				701	0								

Oakland County -- Server Virtualization/Consolidation Implementation

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?						
								Y1	Y2	Y3	Y4	Y5	Y6	
Websphere ND Per Processor Single/Dual Core - Includes Year 1 Maintenance	Infrastructure				13,180	0								
Websphere ND Per Processor Single/Dual Core - Year 2 and Beyond	Infrastructure				2,635	0								
SSL Certificate	Infrastructure				845	0								
TBD	Infrastructure					0								
TBD	Infrastructure					0								
TBD	Infrastructure					0								
TBD	Infrastructure					0								
Internet Access	Infrastructure				180	0								
Project Staff Training	Training					0								
User Training	Training					0								

Oakland County -- Server Virtualization/Consolidation Implementation

Return on Investment Analysis

Cost Detail

Cost Description	Project Cost Category	Potential Cost Extensions					
		Y1	Y2	Y3	Y4	Y5	Y6
IT Hours - New Development	Development Svcs	842,775.92					
IT Hours - New Development - CNT	Development Svcs	139,567.99					
IT Hours - New Development - SCP	Development Svcs	69,783.99					
Server - Acquisition/Upgrade	Infrastructure	320,000.00	320,000.00	320,000.00	320,000.00	320,000.00	320,000.00
Annual Power Usage (Kwh)	Infrastructure	33,638.40	33,638.40	33,638.40	33,638.40	33,638.40	33,638.40
Windows Data Center Licenses	Infrastructure	5,100.00	5,100.00	5,100.00	5,100.00	5,100.00	5,100.00
Windows Enterprise Licenses	Infrastructure	41,580.00	41,580.00	41,580.00	41,580.00	41,580.00	41,580.00
Windows Standard License	Infrastructure	0.00	0.00	0.00	0.00	0.00	0.00
SQL Server Enterprise	Infrastructure	108,000.00	108,000.00	108,000.00	108,000.00	108,000.00	108,000.00
SQL Server Standard	Infrastructure	19,000.00	19,000.00	19,000.00	19,000.00	19,000.00	19,000.00
Oracle Enterprise	Infrastructure	96,000.00	96,000.00	96,000.00	96,000.00	96,000.00	96,000.00
VM Platinum	Infrastructure	17,400.00	17,400.00	17,400.00	17,400.00	17,400.00	17,400.00
SAN - NS120	Infrastructure	37,000.00	37,000.00	37,000.00	37,000.00	37,000.00	37,000.00
MS SQL Server Enterprise Per Processor - Year 2 and Beyond	Infrastructure						
Websphere Basic Per Processor Single/Dual Core - Includes Year 1 Maintenance	Infrastructure						
Websphere Basic Per Processor Single/Dual Core - Year 2 and Beyond	Infrastructure						

Oakland County -- Server Virtualization/Consolidation Implementation

Return on Investment Analysis

Cost Detail

Cost Description	Project Cost Category	Potential Cost Extensions					
		Y1	Y2	Y3	Y4	Y5	Y6
Websphere ND Per Processor Single/Dual Core - Includes Year 1 Maintenance	Infrastructure						
Websphere ND Per Processor Single/Dual Core - Year 2 and Beyond	Infrastructure						
SSL Certificate	Infrastructure						
TBD	Infrastructure						
TBD	Infrastructure						
TBD	Infrastructure						
TBD	Infrastructure						
Internet Access	Infrastructure						
Project Staff Training	Training						
User Training	Training						

Oakland County -- Server Virtualization/Consolidation Implementation

Return on Investment Analysis

Cost Summary

Cost Description	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Total
Development Services:							
IT Hours - New Development	842,776						842,776
IT Hours - New Development - CNT	139,568						139,568
IT Hours - New Development - SCP	69,784						69,784
<i>Development Services Subtotal:</i>	1,052,128						1,052,128
Hardware:							
<i>Hardware Subtotal:</i>							
Software:							
<i>Software Subtotal:</i>							
Infrastructure:							
Server - Acquisition/Upgrade	320,000	320,000	320,000	320,000	320,000	320,000	1,920,000
Annual Power Usage (Kwh)	33,638	33,638	33,638	33,638	33,638	33,638	201,830
Windows Data Center Licenses	5,100	5,100	5,100	5,100	5,100	5,100	30,600
Windows Enterprise Licenses	41,580	41,580	41,580	41,580	41,580	41,580	249,480
Windows Standard License	0	0	0	0	0	0	0
SQL Server Enterprise	108,000	108,000	108,000	108,000	108,000	108,000	648,000
SQL Server Standard	19,000	19,000	19,000	19,000	19,000	19,000	114,000
Oracle Enterprise	96,000	96,000	96,000	96,000	96,000	96,000	576,000
VM Platinum	17,400	17,400	17,400	17,400	17,400	17,400	104,400
SAN - NS120	37,000	37,000	37,000	37,000	37,000	37,000	222,000
<i>Infrastructure Subtotal</i>	677,718	677,718	677,718	677,718	677,718	677,718	4,066,310
Training:							
<i>Training Subtotal:</i>							
Other:							
<i>Other Subtotal:</i>							
Costs Total:	1,729,846	677,718	677,718	677,718	677,718	677,718	5,118,438

Oakland County -- Server Virtualization/Consolidation Implementation

Return on Investment Analysis

Assumptions

Date	Assumption Description																																												
	Installation of 10G Link between OCC and South Oakland will require all core network and server switches to be restarted, resulting in temporary outage.																																												
	Estimates for certification/testing of applications migrated to virtual environment are based on inputs of Technical Architect.																																												
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	Preparation of South Oakland for SAN Build (e.g. APC, Cooling, and Electrical) is not in scope.																																												
	Current environment doesn't have SQL 2008, Oracle 11g Databases; therefore not considered in scope for consolidation.																																												
	Retiring Old Database servers in not in scope of Database consolidation.																																												
	Savings Summary - Projections for line Items 03-06 are based on assumption of virtualizing 50% of current physical environment (240 Servers)																																												
	List Of Databases in Scope of Consolidation																																												
	<table border="1"> <thead> <tr> <th colspan="4">SQL Server</th> </tr> <tr> <th></th> <th>SQL Server 2000</th> <th>SQL Server 2005</th> <th>SQL Server 2008</th> </tr> </thead> <tbody> <tr> <td>CLEMIS Dew/QA (cots)</td> <td>26</td> <td>10</td> <td></td> </tr> <tr> <td>CLEMIS Dew/QA (In-house Development)</td> <td>5</td> <td>4</td> <td></td> </tr> <tr> <td>CLEMIS Production (cots)</td> <td>62</td> <td>10</td> <td></td> </tr> <tr> <td>CLEMIS Production (In-house Development)</td> <td>7</td> <td>7</td> <td></td> </tr> <tr> <td>Non CLEMIS Dew/QA (cots)</td> <td>5</td> <td>80</td> <td></td> </tr> <tr> <td>Non CLEMIS Dew/QA (In-house Development)</td> <td></td> <td>76</td> <td></td> </tr> <tr> <td>Non CLEMIS Production (cots)</td> <td>7</td> <td>61</td> <td></td> </tr> <tr> <td>Non CLEMIS Production (In-house Development)</td> <td></td> <td>54</td> <td></td> </tr> <tr> <td>Total Databases</td> <td>112</td> <td>302</td> <td></td> </tr> </tbody> </table>	SQL Server					SQL Server 2000	SQL Server 2005	SQL Server 2008	CLEMIS Dew/QA (cots)	26	10		CLEMIS Dew/QA (In-house Development)	5	4		CLEMIS Production (cots)	62	10		CLEMIS Production (In-house Development)	7	7		Non CLEMIS Dew/QA (cots)	5	80		Non CLEMIS Dew/QA (In-house Development)		76		Non CLEMIS Production (cots)	7	61		Non CLEMIS Production (In-house Development)		54		Total Databases	112	302	
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	<table border="1"> <thead> <tr> <th colspan="4">Oracle RDBMS</th> </tr> <tr> <th></th> <th>Oracle 9i</th> <th>Oracle 10g</th> <th>Oracle 11g</th> </tr> </thead> <tbody> <tr> <td>CLEMIS Production (cots)</td> <td>1</td> <td></td> <td></td> </tr> <tr> <td>CLEMIS Production (In-house Development)</td> <td></td> <td></td> <td></td> </tr> <tr> <td>CLEMIS Dew/QA (cots)</td> <td>2</td> <td></td> <td></td> </tr> <tr> <td>CLEMIS Dew/QA (In-house Development)</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Non CLEMIS Production (cots)</td> <td>5</td> <td>4</td> <td></td> </tr> <tr> <td>Non CLEMIS Production (In-house Development)</td> <td></td> <td>11</td> <td></td> </tr> <tr> <td>Non CLEMIS Dew/QA (cots)</td> <td>4</td> <td>6</td> <td></td> </tr> <tr> <td>Non CLEMIS Dew/QA (In-house Development)</td> <td></td> <td>15</td> <td></td> </tr> <tr> <td>Total Databases</td> <td>12</td> <td>36</td> <td></td> </tr> </tbody> </table>	Oracle RDBMS					Oracle 9i	Oracle 10g	Oracle 11g	CLEMIS Production (cots)	1			CLEMIS Production (In-house Development)				CLEMIS Dew/QA (cots)	2			CLEMIS Dew/QA (In-house Development)				Non CLEMIS Production (cots)	5	4		Non CLEMIS Production (In-house Development)		11		Non CLEMIS Dew/QA (cots)	4	6		Non CLEMIS Dew/QA (In-house Development)		15		Total Databases	12	36	
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