

PSM Conference August 2012

#### OCKNEED MARTIN LAVMAN & LAVMAN

### Session Objectives

- Show how one services organization has leveraged measurement and embedded it into their culture
- See how external (SLAs) and internal (workload management and profitability) measurement needs drive services measurement
- Introduce CMMI for Services and explore measurement practice connections
- Share how measurement drives management, resulting in superior service and satisfied customers



Agenda

#### CITIC - Program Overview

- Use of CMMI for Services
- Service Measurement Plans & SLAs
- Monitoring Actual Performance against Plans
- Being Proactive Prediction & Modeling
- "Built-in" Measurement
- Summary
- D&A





## CITIC - Program Overview-1

- Lockheed Martin Consolidated Information Technology Infrastructure Contract (CITIC)
- Customer: Centers for Medicare & Medicaid Services (CMS)
  - day-to-day IT Operations & Maintenance (O&M) functions (high availability – 24/7)
    - Service Desk, Mainframe Support (Tier 1), Mid-Tier Support (Tier 2), Desktop Support (Tier 3), Voice, Data, NOC, etc.
    - Performance, Request, Incident, Configuration, Asset, and Change management
    - Security and Disaster Recovery
  - modernization of the IT infrastructure



#### CITIC - Program Overview-2

Contract length – 10th year anniversary
 follow-on contract awarded (2015)

- Contract contains:
  - Base Daily operations component
    Fixed, SLA focused
    Functional Teams



- Project Modernization & improvement component
  - Task Order based
  - O&M personnel create small cross-functional R&D teams
  - Teams are supported by a PMO



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#### CITIC Service System



#### CMMI for Services







## Services vs. Development

- Services imply <u>on-going relationships</u> governed by <u>service agreements</u>.
- Services are delivered through the operation of a <u>service system</u> (people, process, tools).
- Services are simultaneously produced and consumed.
- Services have a different business rhythm.

Product		Deliver	
Service	Develop	Deliver	



#### CMMI for Services in Context





### Measurement in CMMI-SVCs







#### Service Measurement Plans & SLAs

- Availability
- Return to Service
- Notification
- Severity of Service Outages
- Response Time
- AMDs (Adds/Moves/Deletes)
- Information Recovery
- Production and Scheduling
- Abandoned Calls
- Queue Management
- First-call Problem Resolution
- Outage Notification

Metrics Data Collection Methodology Plan (MDCMP)



- Metric number and name
- Metric description
- Data sources
- Measurement processes
- Computation of the standards
- Measurement interval
- Reporting interval



...plus...

Quality Performance Measurements (beyond SLA obligations)

Including:

- Overall Management Effectiveness
- Contract Program Management
- Operations Support
- Technical Support
- General Support
- Management Planning
- Security Management
- Quality Assurance and Risk Management
- Responsiveness to local and special needs
- End User Communication

# Monitoring Actual Performance



TTPR METRICS: Aggressive Service Level Agreements (SLAs) & Quality Performance Measures



#### Automation is Key

- Infrastructure Management Systems
  - Remedy
  - > ACD

(Automated Call Distribution)



#### **Infrastructure Monitoring Systems**

Tivoli, ITM, OMEGAMON, Remote Control, Configuration Manager, Data Warehouse, Enterprise Console, NetView, Composite Application Manager, Symantec, Enterasys Host Intrusion Detection (HID), Tripwire, Trend Micro Deep Security NetBackup, ESM, SAN, Hitachi High Command, Backup Exec, Windows Server Update Services (WSUS), VMware Update manager (VUM). Virtual Center, HP Insight Manager, EMC Navisphere, BellMonitor, Windows Domain<sub>4</sub> Controllers, CA-Vantage.



#### Examples-1













#### Examples-3



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# Examples-4

E

		Issues												
Γ	Milestones	Dista												
	Milestone	r(15K5												
	Prod Build Complete	Risk	Risk			Description		Mitigation						
	TRB Complete	00000					When the second second second							
	O&MM Complete	CISCO ASA	B.4.2 Code B	ug Issues	(3) Closed	The required ASA of after the release in	tode 8.4.2 will need to be tested	LM is working w issue as a bun for th						
	Receive Approval from TRB for ORR					incompatibility four	nd in ASA code could delay the	7/11/11 - LM has re e that engineering cod c be delivered to LM to official Production re 2011; CMS would lik VPN solution						
	ORR Complete					project schedule. C	ingoing issues with issues with code							
	CITIC Contractor Conversion to New Client O&M Handoff Complete					protocol. LM has re IPSec which would	commended that CMS use SSL vs. change the scope of this effort.							
(	Obtained Sign Off by the GTL on the Form	Delay in Ar User Availa	yConnect Cli ibility	ent Installations -	(3) Closed	Installations may b the end user on th	Users will need to be receive the new soft							
CENTERS for MEDICAR	Project Closed	End User R	tesistance to	New Interface	(3) Closed	There may be learn a new interfa	some resistance from the users to ce.	Lockheed Martin multiple delivery mo transition.						
	Task Name Conduct End User Training Sessions	Delay in C	sco ASA 8.4.2	2 Code Release	(3) Closed	Project schedule m the release date fo	ay be delayed if Cisco postpones r the required ASA code (currently	LM is working closely with accurate timefr						
LM will: 1. Procure Any	Deploy Uninstall package of old VPN OUSers	Client to Pilot	10/28/2011	1/31/2012	Green	Karen Shields approved restar Special Needs users								
SHA-2 PIV cer 2. Procure, co	Current Tasks (1/15/2012 - 1/21/2012)													
3. Provide trail	Task Name		Start Date	Finsh Date	Status	Notes								
Project Mana	Conduct End User Training Sessions		8/31/2011	2/17/2012	Green									
STEVEN TRAC	Deploy Uninstall package of old VPN (	Client to Pilot	10/28/2011	1/31/2012	Green	Karen Shields approved restart Special Needs users	to complete following additional							
Percent Com	0.003						CMS laptops - kicked off push on							
88							ne was extended to 1/7/12							
Project Curre	III. Filase.	Pioje	Leau.		3. Pro	curement of 3 FIPS licenses utilizing	301 funding - Approved and currently							
Implementation	n	Christopher Russell			In pro									
Funding Sour	rce:	Funde	ad Amount/NTE	E:	on 1/9	/12.								
301								19						

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#### Examples-5



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## Examples-56

			0 MARTIN A.				CMS APF	LICATION	PROJEC	TED REC	UIREME	ms						MS	
					Utilization Projected Requirements: Storage														
		Application Primary	Application Group	Application Prefix	Application Server	Total	Current U Prim	Itilization Mig	Tape	Apr 2011	May 2011	Jun 2011	Jul 2011	Aug 2011	Sep 2011	Oct 2011	Nov 2011	Dec 2011	Jan 2012
		-					Allerings of the	a tot around	-										
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		IDR			Tetal TB	12.95 TB	4.87 TB	8.12 18	.00 TS	.48 TB	.52 TB	.70 TB	AD TB	1.22 18	1.40 TB	4.84 TB	4.87 TB	.00 TB	
						van ar nov							er van moes						
		MAPD	EDD.	Inne I													_	1	
		MAPD	DDB	DDB		23 118	.m TB	.15 TB	.00 15	.02 78	03 TB	.94 TB	.01 TB	AL TR	.60 TB	.02 TB	.09 TB		
		MAPD	DDX	DDX		28.34110	MO TD	22.30 110	.15 78	3,25 18	2.94 10	2.00 10	234 10	3.28 10	1.30 110	3.40 10	3.65 10		
		MAPD	EDB	EBS				1				1		1					
		MAPD	EDB	EDB		1.39 TB	1.32 TB	.06 TB	.00 TB	1.29 TB	1.16 18	1.20 TB	1.28 TB	1.29 78	1.30 TB	1.30 TB	1.32 TB		
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				1 otal	Amt Use	a	Usea	Status									.01 TB		
	End-of-Life							6					- constru				.90 715		
	Hitachi TagmaStore UI	PS1100 (HDS	S-28) (Mainframe)	85.29 T	B 13.68	TB 1	6.04%	Yellow	Due to be	ing End-of	f-Life volu	mes (July 2	2013)				.01 TB		
	Wintel NS-960								_								.05 TB		
	Clairon EMC NS-960			363.63 T	B 190.97	TB 5	2.52%	Green											
	Wintel Server Connec	ctions					0										32.31 TB		
	Physical Servers attach	ed to EMC N	IS-960	22.75 1	B 12.54	TB 5	5.12%	Green									2.77 TB		
	Vitual Servers attached	to EMC NS-	.960	65.61 T	B 34.17	TB 5	2.08%	Green	-								.18 75		
	By Device																5.20 TB		
	EMC VMAX (ECKD)			275.55 1	B 134.63	TB 4	8.86%	Green	Capacity	as seen fro	om the mai	nframe side	e				5,91 18		
•	EMC VMAX (Open Sy	ystems)		259.07 T	B 174.84	TB 6	7.49%	Yellow	Due to a	monthly av	erage utiliz	ation great	ter than 50	% and less	than 80%				
rag	Hitachi TagmaStore 99	90 (HDS-999	00A) (Open Systems)	73.08 1	B 45.96	TB 6	2.89%	Yellow	Due to a	monthly av	erage utiliz	ation great	ter than 50	% and less	than 80%				
Sto	Hitachi TagmaStore UI	PS1100 (HDS	S-28) (Mainframe)	85.29 1	B 13.68	TB 1	6.04%	Yellow	Due to be	ing End-of	f-Life volu	mes (July 2	2013)	Marriel I		_			
	Hitachi TagmaStore UI	PS1100 (HDS	S-29) (Open Systems)	72.33 1	B 71.80	TB 9	9.27%	Red	Due to a	monthly av	erage utiliz	ation great	ter than 80	%					
	IBM DS8100 (ECKD)			35.15 1	B 27.97	TB /	9.57%	Yellow	Due to a	monthly av	erage utiliz	tation great	ter than 80	% and less	than 90%				
	IBM DS8100 (Open Sy	ystems)		31.10 1	B 30.55	1B 9	8.25%	Red	Due to a	monthly av	erage utiliz	tation great	ter than 90	1%		_			
	2/08 #0/M			41.50 1	B 29.20	18 /	0.30%	Ked	Due to a	monthly av	erage utiliz	cauon great	ter than 80	70		_			
	Z/OS, Z/VM			150 517	n	TD	5.209/									_			
	Production			159.54 1	B 88.07	TD 7	7.78%	Yellow	Due to a	monthly av	erage utiliz	tation great	ter than 50	% and less	than 80%	_	*******		
	Davalanment			18.54 1	B 14.42	TD 4	7.720/	Yellow	Due to a	monthly av	erage utiliz	ation great	ter than 50	% and less	than 80%				
	Shared Overhead & P.	adama		122.24.7	B 28.83	TD 2	2 6794	Green											
	Shared, Overhead & Ko	eserve		122.34 1	59.97	10 3	2.0770	Green									.01 TB		

#### Being Proactive - Prediction & Modeling

- A program best practice observed is routinely using models to:
  - predict future infrastructure needs
  - project cost overruns and <u>staff resource needs</u>
  - justify contract increases





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#### The "True Up" Process



#### Being Proactive - Prediction & Modeling

- Examples:
  - Executive Support Services (a part of Desktop Support) used CMS Executive Staff increases and time/call to request an increase in funding/staff
  - Service Desk uses hourly & day-of-week call logs plus call times to drive staffing plans and work schedules
  - Server replacement project
- Key inputs to true up process:
  - Historical performance data (volume, trends, response times)
  - Staff productivity/unit cost rates
  - Data Center modeling; projected growth
  - Evaluation of resource requirements for new applications
  - Considerations of the evolution of hardware and software products (301 improvements)
  - Analysis of the interaction of all these drivers

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#### True Up – Service Desk

- Call Statistics (Volume, Calls/FTE, Min/Call)
- Staffing (Actual Hours/FTEs, Overtime)
- Projected Needs (Application & Project Roadmaps)
- Financial Performance (Staff Costs, Contract \$\$, Profit Goals)



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#### Wide Variety of meetings with key stakeholders:

- Daily interaction to discuss ongoing requirements and activity, performance issues, status of problems under resolution, upcoming requirements, and changing priorities.
- Discuss daily schedules, priorities, or issues.
- Weekly interaction to discuss real or potential contract or business issues, status of subcontracting goals, costs, and other relevant issues
- Weekly interactions to discuss ongoing program status, how well our team is meeting CITIC requirements, and any other issues important to CMS
- Business update, strategy, and problem resolution, as well as goals, technical issues, and resource issues
- Business update, strategy, and problem resolution, as well as budget and technical issues
- Project update/strategy
- Compare results of operations and over/under-run to plan, and plans to accommodate it.
- Compare results of operations and over/under-run to plan, and plans to accommodate it.
- Exchange information on resources, projecting resource shortages, line of business upcoming activities.
- Review details included in the PSPR, discuss plans and upcoming milestones and ensure that our performance is consistent with CMS needs and expectations.
- Executive-level interaction to address program progress and to identify any areas in which our team could better support CMS in meeting CITIC program objectives



#### "Built-in" Measurement-2







### Examples of Correction Actions

- Call for volunteers
- Temporary staff augmentation
- Cross-training and cross-functional assignments
- □ True-ups



Summary

#### Consistent use of "objective" information" with client has forged a true partnership

- client's level of trust has dramatically increased over life on contract
- In the beginning, SLAs were used for reward and punishment...
  - NOW SLAs are no longer tied to \$\$, yet still reported to support proactive management of the CMS IT infrastructure







#### Questions or Comments?





