The SBE Method

Solutions

Based

Engineering

By:

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Agenda

- Introduction
- What is SBE?
- Drivers
- Quality
- Constraints
- Requirements
- Templates
- Pulling it together
- Output
- Summary
- Example

Introduction

The Problem:

"Engineering a system is somewhat complex and difficult, often due to the lack of detailed requirements and the knowledge to apply those requirements to a design"

-Ralph M. DeFrangesco

What is SBE?

The answer!

- SBE provides:
  - Tools necessary for the SE to collect technical requirements
  - Guides the SE through server sizing process
  - Provides output based on inputs

Our Goals

- Our goals
  - Create a repeatable process
  - Rules based
  - Quality enforced
  - Input from all groups
  - Create a paper trail
  - Can be customized/flexible
  - Inexpensive

Drivers

- Necessity is the mother of invention!
- Needed a consistent way to collect requirements and design systems
  - Use tarot cards and a crystal ball
- Explain to the CIO why your system is over/under sized!!!

Quality - CMMI

- What is CMMI?
- Who uses CMMI?
- SBE will meet CMMI, Six Sigma initiatives
  - Consistent
  - Repeatable

Constraints

- Not for:
  - MPP
  - Downstream capacity
  - PC's
- It's only as good as the inputs
  - GIGO
- Not meant to replace experience

Requirements

- The heart of the methodology!
- Poor requirements leads to a poor design!
- Requirements should not be written in stone
  - The process to capture them should be!
    - Requirements are subject to change
- Simple changes can cause major design changes and cost over runs!

Business Template

- Data collected
  - Current date?
  - Project name?
  - Explanation of project/activity?
  - Project number?
  - Project description?
  - Business unit?
  - Business sponsor?
  - Implementation date?
  - Support criticality?

Database Administration Template

- Data collected
  - Database type (Oracle, SQL)?
  - Number of concurrent users?
  - Number of total users?
  - Memory required per user?
  - Memory required for the database (SGA)?
  - File systems or raw volumes?
  - Disk space required for the database?

Application Template

- Data collected
  - Is this a custom Application?
  - If yes, what kind (C, C++)?
  - How much memory is required for the Application?
  - How much disk is required for the Application?
  - How much data will it generate?
  - How many total users will use the Application?

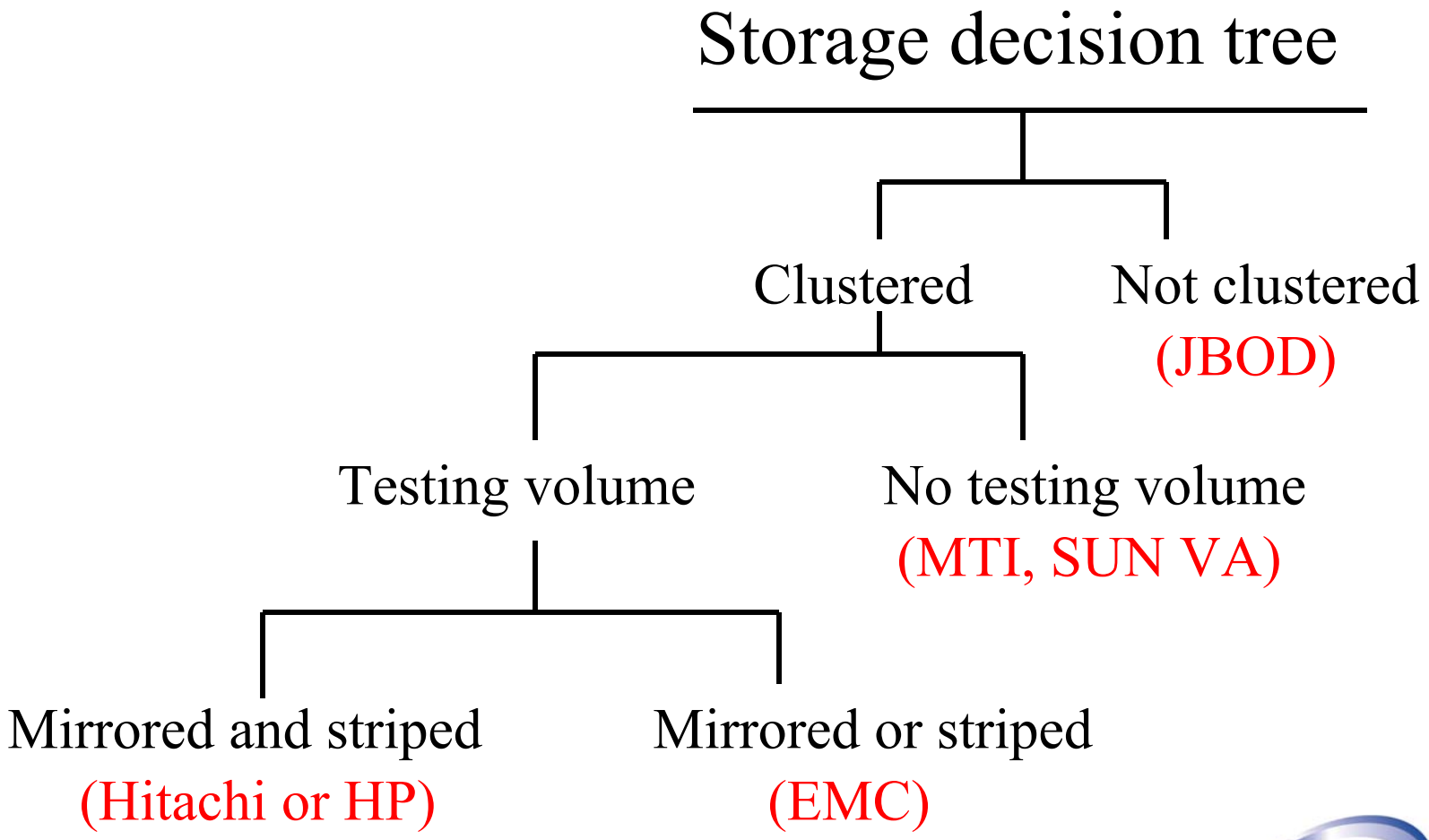
Memory

- Add up all the memory requirements
  - The OS
  - OS Applications (Online JFS, Glance)
  - The database
  - Scripts
  - Any additional Applications (compilers)

Storage

- Add up the storage requirements
  - Are you using clustering?
  - SCSI or Fibre channel?
  - Mirroring or striping?
  - Will you need an additional copy of the data for testing?
  - DBAR

Storage


Storage decision tree
Clustered
Not clustered
(JBOD)
Testing volume
No testing volume
(MTI, SUN VA)
Mirrored and striped
(Hitachi or HP)
Mirrored or striped
(EMC)

Select a server

SPEC cfp_rate2000

System Load				
	Heavy	15.0	40.0	200.0
	Medium	10.0	30.0	110.0
	Light	4.0	20.0	55.0
	# of users	1-50	51-500	501-1000

Number of concurrent users

Failover?

Recovery Time	Automatic Failover	Manual Failover
> 60	-Use of inhouse scripts -Shared space -Somewhat expensive	-Copy data -Shared space -Least expensive
< 60	-Fully automated -Standby server	-Labor intensive -Standby server
0	-Most expensive	-Somewhat expensive

Pulling it together

- Copy of the business requirements
- Add up memory requirements
- Add up storage requirements
- Output is business/technical requirements + server specification + technical drawings & calculations

Summary

- Our goals
  - Create a repeatable process
  - Rules based
  - Quality enforced
  - Input from all groups
  - Create a paper trail
  - Can be customized/flexible
  - FREE!!!

An example

ABC company is about to launch a new sales initiative. A new Application that is written in VB and will run on NT and the backend database will run on Unix.

*Refer to the paper 055-SBE-Methodology.doc for technical/business requirements.

Add up the memory

- Memory
  - OS 256MB
  - OS Apps 32MB
  - Database 1.210GB
  - Scripts 500KB

  Total memory 1.499GB

  *Increased to 2GB for growth

Add up the storage

- Storage
  - Database 100MB
  - Data 10GB
  - Logs 2GB
  - SWAP 4GB

  Total storage 16.1GB

Size the CPU

- CPU
  - 1-50 users
  - Light system load
    - 4.0 from Spec cfp_rate 2000 chart
- No failover is required

HW Recommendations

- Hardware
  - HP ‘L’ class
  - 1 CPU @550 Mhz
  - 2.0GB memory
  - 4 SCSI connections
  - 2x18.2GB Ultra for data
  - 2x9.1GB Ultra for logs
  - 2x9.1GB Ultra for OS + Apps + scripts + SWAP
  - 1x100Mbps Ethernet card
  - 1x4mm DAT tape drive

SW Recommendations

- Software
  - HP-UX 11i OS
  - OmniBack backup software
  - Measureware
  - Glance Plus
  - Online JFS
  - C compiler
- Support
  - Basic 24x7 support

Additional Information

- Presentation on conference CD
  - 055-Solutions-Based-Engineering.ppt
- Paper and templates on CD
  - 055-SBE-Methodology.doc
  - 055-SBE-Excel-Templates.xls
  - 055-Rational-Template.doc

Q & A