

Fermilab
FY2002 Self-assessment
Process Assessment Report
For
Division/Section Particle Physics Division

Date September 21,2002

Division/Section performing assessment

Particle Physics Division (PPD)

Name of organization that owns assessed process

PPD Mechanical Department

Organization Strategy

The PPD Mechanical Department uses a group of Servers to run a Computer Engineering and Design software package, IDEAS. IDEAS is used many Engineers and Designers in the Mechanical Department to aid in the engineering and design of current projects which the Mechanical Department supports. If the IDEAS package is not available these individuals productivity will drop, therefore it is important the Servers are up and running.

Names of Personnel on Assessment team

Kurt Krempetz and Vivian Villegas

Name of process assessed

Uptime of the Computer Aided Design Servers.

Brief description of process to be assessed

There are 5 Servers used to run the IDEAS software package. These servers are typically referred to as the CAD Servers. The number of hours each Server is down will be logged so the fraction of Uptime can be determined.

1. Are metrics associated with this process? If so, what are they?

A number, which is the product of the Uptime fraction multiplied by the number of users, is a good representation of how well the process is performing. The number, which is referred to, as the Efficiency Number in this document will be divided by the maximum Efficiency number to determine an overall percent Efficient.

| <u>Uptime Fraction</u> | <u>Rating</u> |
|------------------------|----------------|
| 99% -100% | Outstanding |
| 98% - 99% | Excellent |
| 95% - 98% | Good |
| 90% - 95% | Marginal |
| less than 90% | Unsatisfactory |

2. What are the names of the procedures associated with this process?

The following procedure is used to evaluate this process. A record of the downtime of each server is collected. This data is then reviewed and evaluated per this self-assessment document and metrics numbers are determined.

3. Are these procedures being followed? Are they current?

These procedures are current and are being followed.

4. Describe the methodology used to assess this process.

This being the first assessment it was decided to obtain the downtime of each server for the last six months. Therefore this assessment goes from March 1, 2002 to September 1,2002. The number of days being assessed is 184 days or 2,208 hours. The downtime and user data was obtained from Vivian Villegas. An additional phone conversation was necessary to determine the hours of downtime. From this data, taking the total number of hours and subtracting the downtime calculated the uptime. The fraction uptime was determined by taking the uptime divided by the total number of hours. The efficiency number was calculated by multiplying the fraction uptime by the # of users. It needs to be noted that CADWHS05 is a license server so for 57 individuals their particular CADWHS needs to be running and CADWHS05 need to be up to run IDEAS. For 10 users currently working on workstations there local workstation needs to be running and CADWHS05.

5. Results of the assessment:

| <u>Server Name</u> | <u>Downtime</u> | <u>Uptime</u> | <u>Fraction Uptime</u> | <u># of users</u> | <u>Eff. #</u> |
|--------------------|-----------------|---------------|------------------------|-------------------|---------------|
| CADWHS01 | 6 hrs | 2202 hrs | .997 | 16 | 15.952 |
| CADWHS02 | 2.5 hrs | 2205.5 hrs | .998 | 7 | 6.986 |
| CADWHS03 | 2 hrs | 2206 hrs | .999 | 21 | 20.979 |

| | | | | | |
|----------|----------|-------------|------|----|--------|
| CADWHS04 | 2 hrs | 2206 hrs | .999 | 13 | 12.987 |
| CADWHS05 | 0 hrs | 2206 hrs | 1.0 | 10 | 10 |
| Totals | 12.5 hrs | 11025.5 hrs | | 67 | 66.904 |

Percent Efficient =99.8

Note with CADWHS05 having a 100% uptime, all other CADWHS server times where multiplied by 1.

The results of this assessment indicate for the last six months the CAD servers have been very reliable, with the efficiency significantly exceeding 99%. We have therefore assigned a grade of "OUTSTANDING." There has been little loss work time due to servers being down. Almost all of this downtime was contributed to Lab site wide power outages, so even if the servers were up people would have still not been able to perform their work.

Identified opportunities for improvement

In going through this self-assessment process for the first time it is clear that centralizing and improving the documentation/records for actual downtime for each serve would make the self-assessment process go faster and better. I have spoken with Vivian Villegas and a plan to document each server's downtime in the folder/logbook next to each machine was believed to be a good solution to this deficiency.

Also after performing the self-assessment it is clear from a very general point of view a better and more complex process should be assessed. What is really important is the designer and drafter personnel having the tools available to them to perform their job function. This implies that they are able to run the IDEAS software package. For this to occur not only does the CAD servers need to be up and running but also other equipment does as well. This other equipment is the computer network system and the individual PC or X terminal they are using. It should also be noted that this process does not need to be up 24/7 but really needs to be up during the normal workweek from 6 am to 6pm.

Schedule for implementation of improvements

The specific improvement suggested above plans to be put in place by October 1,2002. The more general improvement has no schedule plans to be put in place at this time.

Status of improvements from previous assessment

None, this is the first assessment.

Attachments (supporting data, worksheets, reports, etc.

Kurt,

To answer your questions.

1) The name of all the PPD CAD servers.

cadwhs01
cadwhs02
cadwhs03
cadwhs04

cadwhs05 which is the license server and under CD care is on a UPS which maintains power for approximately two hours before failure.

2) The list of users on each PPD CAD server.

The following list of users does NOT include co-op or summer students which will swell the usage by 5 or 6 more individuals. And does not include ideas administrative users.

CADWHS01

bcyko:William Cyko:/cadwhs/server01/bcyko
cadena:Nick Cadena:/cadwhs/server01/cadena
catalan:James Catalanello:/cadwhs/server01/catalan
cnila:Charles Nila:/cadwhs/server01/cnila
gsmith:Gary Smith:/cadwhs/server01_2/gsmith
kilmer:James Kilmer:/cadwhs/server01_2/kilmer
lavallie:Edward Lavallie:/cadwhs/server01/lavallie
madvic:Vic Majdanski:/cadwhs/server01/madvic
mulvey:James Mulvey:/cadwhs/server01/mulvey
patpoll:Patricia Poll:/cadwhs/server01/patpoll
pushka:David Pushka:/cadwhs/server01_2/pushka
reeder:Jerry Reeder:/cadwhs/server01_2/reeder
sperry:Thomas Sperry:/cadwhs/server01_2/sperry
szymulan:Andrew Szymulanski:/cadwhs/server01/szymulan
vivianv:Vivian Villegas:/cadwhs/server01_3/vivianv
yoffe:Felix Yoffe:/cadwhs/server01/yoffe

CADWHS02

arnold:Donald Arnold:/cadwhs/server02_2/arnold
edchi:Edward Chi:/cadwhs/server02/edchi
ingridf:Ingrid Fang:/cadwhs/server02/ingridf
rjwoods:Robert J. Woods:/cadwhs/server02/rjwoods
stefanik:Andrew Stefanik:/cadwhs/server02/stefanik

toukhtar:Alexandre Toukhtarov:/cadwhs/server02_2/toukhtar
williamx:Ronald Williams:/cadwhs/server02/williamx

CADWHS03

boetting:William Boettinger:/cadwhs/server03_2/boetting
browning:Fred Browning:/cadwhs/server03/browning
cease:Herman Cease:/cadwhs/server03_2/cease
cjwang:Chicheng Wang:/cadwhs/server03/cjwang
cooper:William E. Cooper:/cadwhs/server03_2/cooper
cusumano:Francesco Cusumano:/cadwhs/server03/cusumano
dolis:Daniel Olis:/cadwhs/server03_2/dolis
eganj:John Egan:/cadwhs/server03/eganj
harrold:Sherry Harrold:/cadwhs/server03_2/harrold
hrycyk:Michael Hrycyk:/cadwhs/server03/hrycyk
jerauch:John Rauch:/cadwhs/server03/jerauch
kowalski:John Kowalski:/cadwhs/server03/kowalski
mateski:Joseph Mateski:/cadwhs/server03_2/mateski
mconono:Frank Mconologue:/cadwhs/server03/mconono
nitti:Benjamin Nitti:/cadwhs/server03/nitti
rafael:J. Rafael Silva:/cadwhs/server03/rafael
rlsmith:Richard Smith:/cadwhs/server03/rlsmith
rpsmith:Richard Smith:/cadwhs/server03/rpsmith
rucinski:Russ Rucinski:/cadwhs/server03_2/rucinski
schell:Jim Schellpfeffer:/cadwhs/server03/schell
trotter:Gary Trotter:/cadwhs/server03_2/trotter

CADWHS04

alee:Ang Lee:/cadwhs/server04/alee
derylo:Gregory Derylo:/cadwhs/server04_2/derylo
ellison:Brian Ellison:/cadwhs/server04_2/ellison
friend:Donald Friend:/cadwhs/server04/friend
giobatta:Lanfranco Giobatta:/cadwhs/server04/giobatta
grimm:Charles Grimm:/cadwhs/server04/grimm
grinnell:Nick Grinnell:/cadwhs/server04/grinnell
howell:Joseph Howell:/cadwhs/server04/howell
jfast:James Fast:/cadwhs/server04/jfast
krempetz:Kurt Krempetz:/cadwhs/server04/krempetz
orlov:Yuri Orlov:/cadwhs/server04_2/orlov
sarychev:Michael Sarychev:/cadwhs/server04/sarychev
sirotenk:Vladimir Sirotenko:/cadwhs/server04/sirotenk

The following users have workstations which get their products and IDEAS from the cad servers. When the servers are down, they are unable to use IDEAS.

villegas:Ernest Villegas:/cadwhw/home01/villegas
smoccia:Stefano Moccia:/cadb0w/home02/smoccia
mlwong:Mayling Wong:/cadwhw/home03/mlwong
goloskie:Donald A. Goloskie:/cadwhw/home04/goloskie

asito:Albert Ito:/cadwhw/home06/asito
mwang:Michael Wang:/cadwhw/home06/mwang
tousign:Don Tousignant:/cadwhw/home08/tousign
roman:Michael Roman:/rdmd/v30_1/roman
saustin:Sharon Austin:/rdmd/v30_1/saustin
cmlei:C. M. Lei:/rdmd/v31_1/cmlei

3) The time each CAD server was down in the last six months. (Since March 02)

There was two scheduled power outages in May and one unscheduled outage also during the last week of May in which all machines were down. Due to the unscheduled outage there was a failure on cadwhs01. When it's motherboard was replaced, (this was the first in the lifetime of this server) there was scheduled downtime after 3:30 pm. Then there was also a module replacement at the end of June with scheduled downtime after 3:30 pm. Also during this time ESP software was put on ALL the servers to monitor them. This software will notify SGI automatically if a problem should arise (even if we are not yet aware of the problem), and open a hardware help request with them, they are on 24/7 and turnaround time is very fast.

uptime

cadwhs01

up 77 days (back to the module replacement caused by the unscheduled power outage)

cadwhs02

up 26 days (an NFS problem and a 5 minute lunchtime reboot)

cadwhs03

up 97 days (power outages)

cadwhs04

up 97 days (power outages)

4) The reason why the server was down; ie: Power outage.

See above

During the lifetime of the 4 servers, there has been two module and one disk replacement since 1996. A very good record. They are very reliable.

If you have any other questions, let me know.

Thanks,

Vivian

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From krempetz@fnal.gov Tue Sep 10 11:07:03 2002

Date: Tue, 10 Sep 2002 11:07:50 -0500

From: Kurt Krempetz <krempetz@fnal.gov>

Subject: CAD server Down Time

To: vivianv@fnal.gov

Cc: carew@fnal.gov, mike@fnal.gov

Hi Vivian,

I been asked to write up a self assessment of the PPD CAD Servers. John iCooper has a Proposed PPD Work Processes Self Assessment List. Below is item 10 separated out of this list which pertains to the PPD CAD Servers.

10. Uptime on the Computer Aided Design Server (Mechanical Dept).
REVIEW in FY02

- a. This department is dependent on the CAD server for a lot of its work, so assessing the uptime of the device would be useful.
- b. A metric could be developed based on the uptime fraction multiplied by the number of licenses.

In order for me to do this self assessment I need some data that I was hoping you have and could supply to me.

- 1) The name of all the PPD CAD servers.
- 2) The list of users on each PPD CAD server.
- 3) The time each CAD server was down in the last six months. (Since March 02)
- 4) The reason why the server was down; ie: Power outage.

Thanks,

Kurt