

Introduction of New Open-use Data Analysis System of Astronomy Data Center - Its Replacement and the Updates

Kazuhisa Kamegai, Nobuhiro Tanaka, Makiko Fujikawa, Mizuki Isogai, Sin'itirou Makiuti, Takeaki Ozawa,
Satoshi Yamanaka, Shin-Ichi Ichikawa, Tadafumi Takata
Astronomy Data Center (ADC), National Astronomical Observatory of Japan (NAOJ)

Abstract: The Astronomy Data Center (ADC) in NAOJ provides the multi-wavelength data analysis system for researchers in astronomy and the related fields. The users who have an account of the system are supported to carry out analytical research on astronomical observation data by using various kinds of astronomical software covering a wide range of wavelengths, and other tools installed in the system. We are now in the process of replacing the computer system to upgrade the computing performance (four times faster compared to the current system) and the disk capacity (two times larger). This allows users to get a more powerful analysis environment. The renewed system will start its operation from March 2018.

Web Site:

https://www.adc.nao.ac.jp/J/kaiseki_top.htm

Question & Request:

consult@ana.nao.ac.jp

User Account Application

① User ID application

Those who can apply:

- (1) Staff of NAOJ
- (2) Researcher of astronomy and related field
- (3) The person who is allowed by the center chief

Japanese <https://www.adc.nao.ac.jp/IDtoroku/index.html>

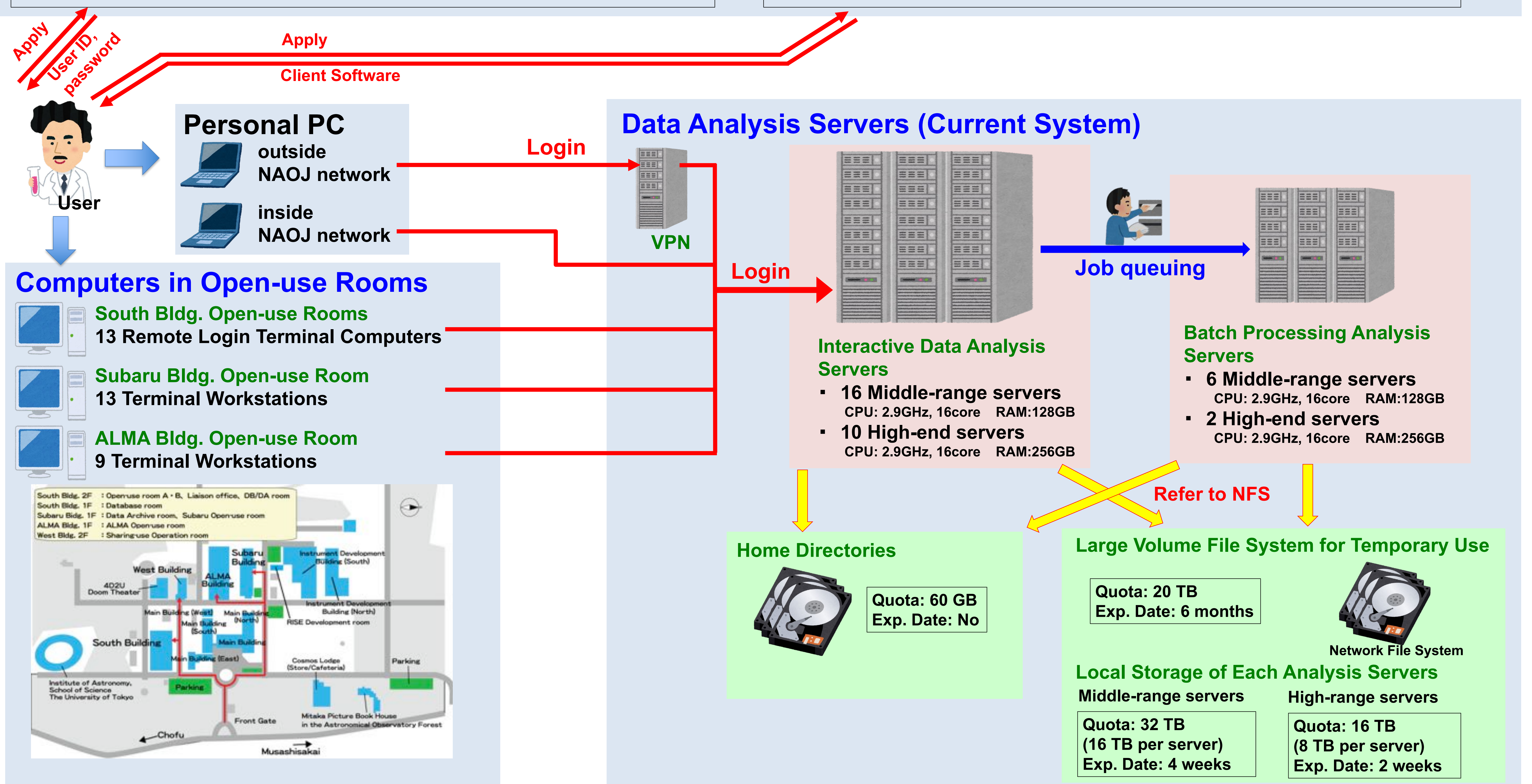
English https://www.adc.nao.ac.jp/E/ID/IDtoroku_e.html

② VPN ID application

- required when a user login from out of NAOJ network
- It is different from VPN for the NAOJ staff.

Japanese <https://www.adc.nao.ac.jp/IDtoroku/vpn.html>

English https://www.adc.nao.ac.jp/E/ID/vpn_e.html



System Replacement

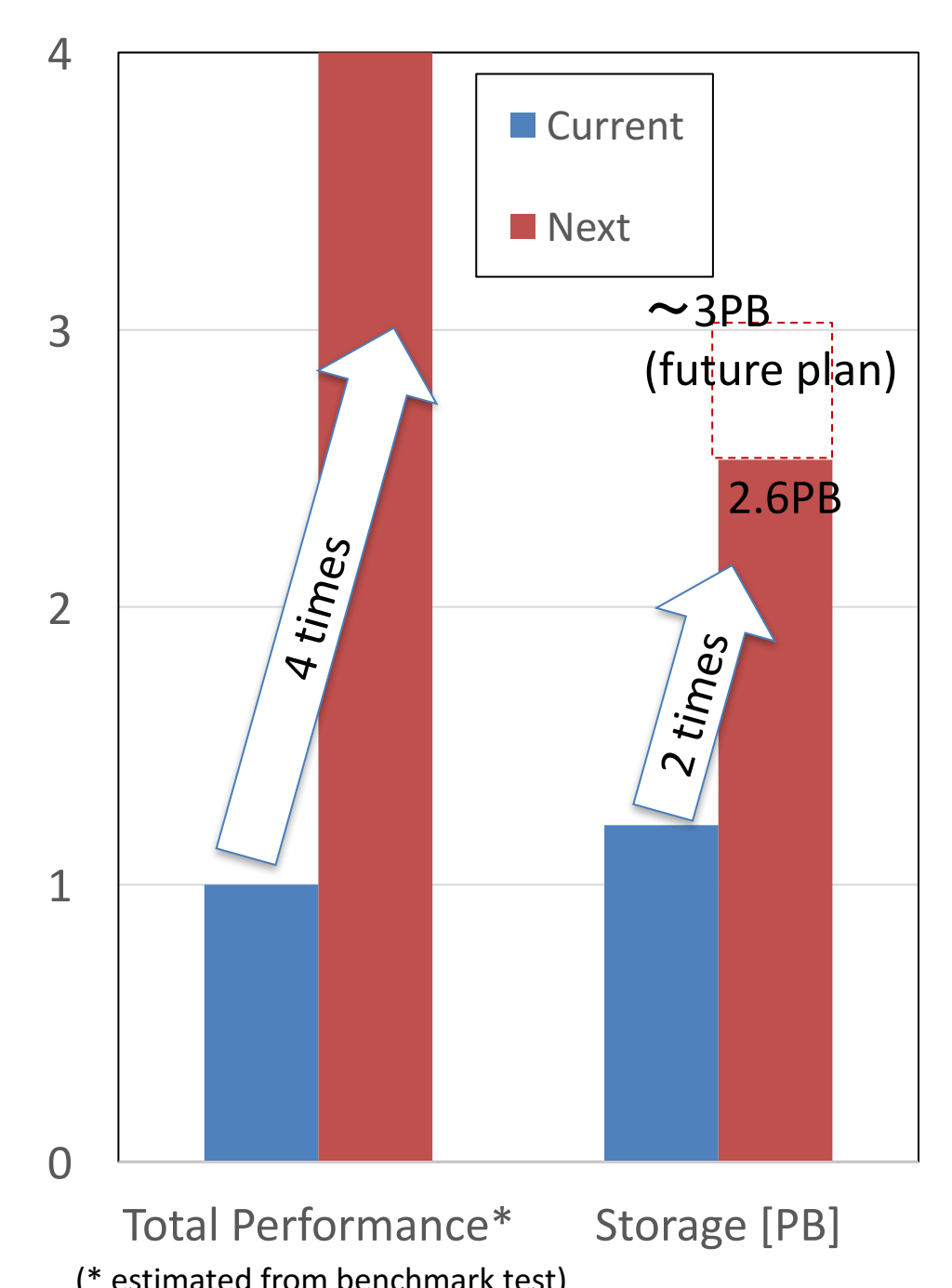
- System replacement is now on going.
- New System will be available on March 1st 2018.
- Following tables and graph are comparison between current and next systems.

Storage	Current System	Next System
Home Area	16 [TB] x 2[machine] = 32TB	55 [TB] x 2 [machine] = 110 TB
Local Storage of Servers		
Middle-Range Interactive Servers	16 [TB] x 2 [partition] x 16 [machine] = 512 TB	12.24 [TB] x 20 [machine] = 244.8 TB
High-End Interactive Servers	16 [TB] x 10[machine] = 160 TB	51 [TB] x 12 [machine] = 612 TB
Middle-Range Batch Servers	16 [TB] x 2[partition] x 6 [machine] = 192 TB	None
High-End Batch Servers	16 [TB] x 2[machine] = 32 TB	None
SubTotal Capacity of Local Disks	896 TB	856.8 TB
Large Volume File System	16 [TB] x 18 [partition] = 288 TB	102 [TB] x 16 [partition] = 1632 TB
Total	1.2 PB	2.6 PB

Serves	Current System	Next System
CPU	Xeon E5 2690 2.9GHz	Xeon E5 2667 3.2GHz
Benchmark Score*1	14055	16654
Cores		
Interactive Server (M)	16 cores x 16 = 256	16 cores x 20 = 320
Interactive Server (H)	16 cores x 10 = 160	16 cores x 12 = 192
Batch Server (M)	16 cores x 6 = 96	16 cores x 2 = 32
Batch Server (H)	16 cores x 2 = 32	None
Total Num. of Core	544	544

*1: From <https://www.passmark.com>

RAM	Current System	Next System
RAM Type	DDR3 1600 RDIMM	DDR4 2400 RDIMM
Middle-Range Servers	128 GB / server	192 GB/server
High-End Servers	256 GB /server	256 GB/server



Software

- OS: Red Hat Enterprise Linux 6 Workstation/Server (current system) → Red Hat Enterprise Linux 7 Workstation/Server (next system)
- Following software packages for astronomy and science are installed on the analysis system.
- Many development environments, web browsers, editors, image processing software, programming languages are also available.

Name	Version
AIPS	31-Dec-16
Astrometry.net	0.67
CASA	3.3.0 – 5.1.1
CASA pipeline	5.1.1
cdsclient	3.8.0
CFITSIO	3.39
COMICS q_series	4.2
Cpgplot	5.2.2

Name	Version
ds9	7.4
fv	5.4
GILDAS	sep16b
gnuplot	4.6.6, 5.0.6
gsl-devel	1.13-1 (64bit)
Heasoft	6.13
HyperZ	1.1
IDL	8.2, 8.5.1
IDL Astronomy User's Library	2013.01.03
IRAF	2.14.1, 2.16, 2.16.1

Name	Version
Java NewStar	20150422
Mathematica	9.0.1, 10.4.1
MCSMDP	1.1.3
MCSRED	20141205
MCSRED2	20170515
MIDAS	13SEPpl.2
MIRIAD	4.3.8
Montage	4.0
MSCRED	5.05
MultiNest	3.6
Nero Linux	4.0.0.0

Name	Version
NewStar	20150422
NOSTAR	20120528
PBS Professional	13.1.2
Pgperl	2.21
Pgplot	5.2.2
Pmw	1.3.3
Scamp	2.0.4
SDFRED	1.4.1, 2.0, 2.0.1
SExtractor	2.19.5
SkyCat	3.1.2
SM	2.4.30

Name	Version
starfinder	1.8.2
STSDAS	3.17
SWarp	2.38.0
TABLES	3.17
VEDA	
WCSTools	3.9.2
xpa	2.1.15
x1liraf	2.0beta