Database for Anode Board Production and Testing

Igor Vorobiev
Carnegie Mellon University

Endcap Muon Meeting
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CMS week
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Oracle

Oracle was selected by CERN in 80-s.

Long time available and well developped system.

Very good support.

Many tools

*(like SQL, SQL*Plus, PL/SQL, precompilers (Pro*FORTRAN, Pro*C/C++ ...), JDBC, OAS, iAS, Oracle XML Developer Kit, ...)*

Was designed as **RDBMS**
- Relational Database Management System.

Information - in **Tables**

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Since version 8 - new features.

Unstructured data - LOB (Large OBjects (up to 4 Gbytes)):

- BLOB (Binary Large Objects)
- CLOB (Character Large Objects)
- BFILE (Reference to a file)

Internet access $->$ Oracle HTTP Server.

BLOB + Internet access

$\Downarrow$

Upload and download files.

New coming version 9i - object oriented

Currently in use:
Oracle 8i
Oracle 9i Application Server

ORACLE at CERN

Public Services:

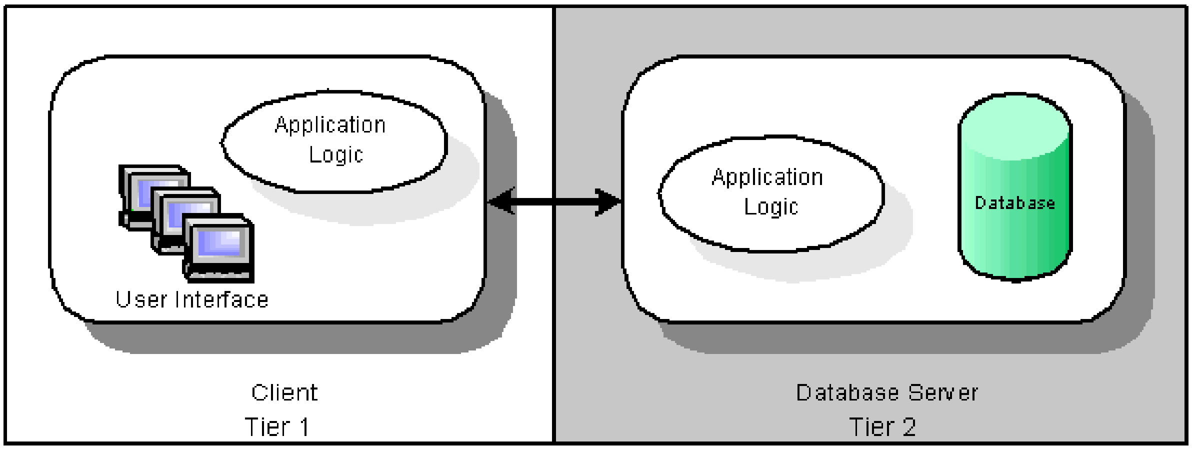
Central Database - General purpose environment
Development Database - Test and deployment of new applications
Case Database - Designer/2000 environment

Private Services:

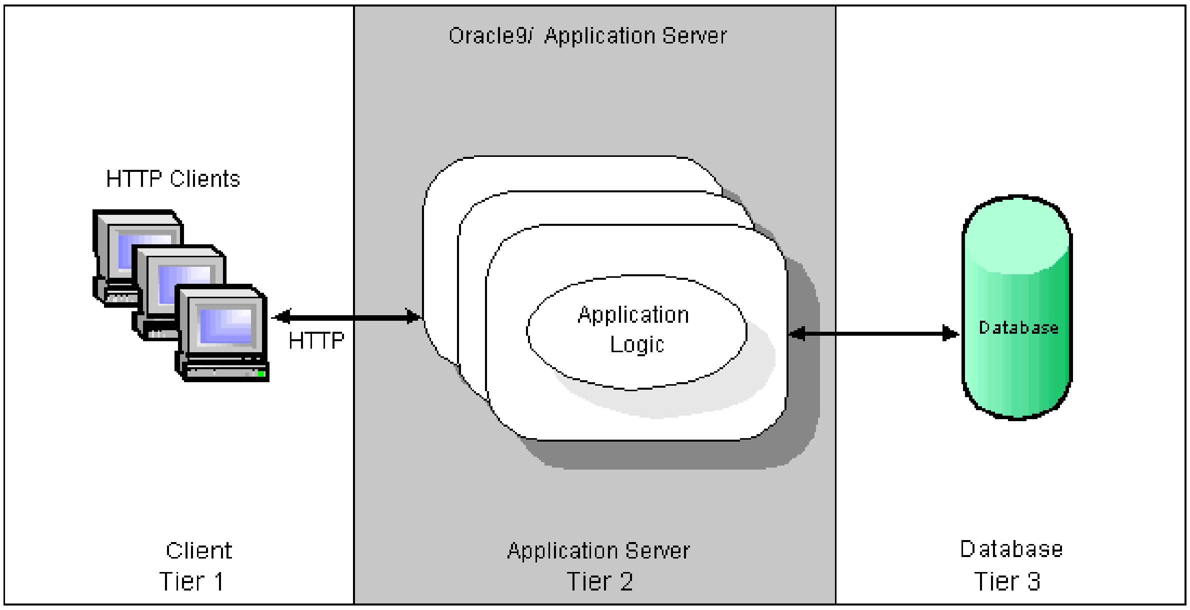
ALARM Oracle database
CHORUS Oracle database
CRYOGENICS Oracle database
EDMS Oracle database
IT/CS Oracle database
LEP logging Oracle database
LEP measurements Oracle database
REMEDY Oracle database
Radio Frequency Oracle database
SL division development Oracle database
SPS measurements Oracle database
Tape Management System Oracle database

Oracle9i Application Server Architecture

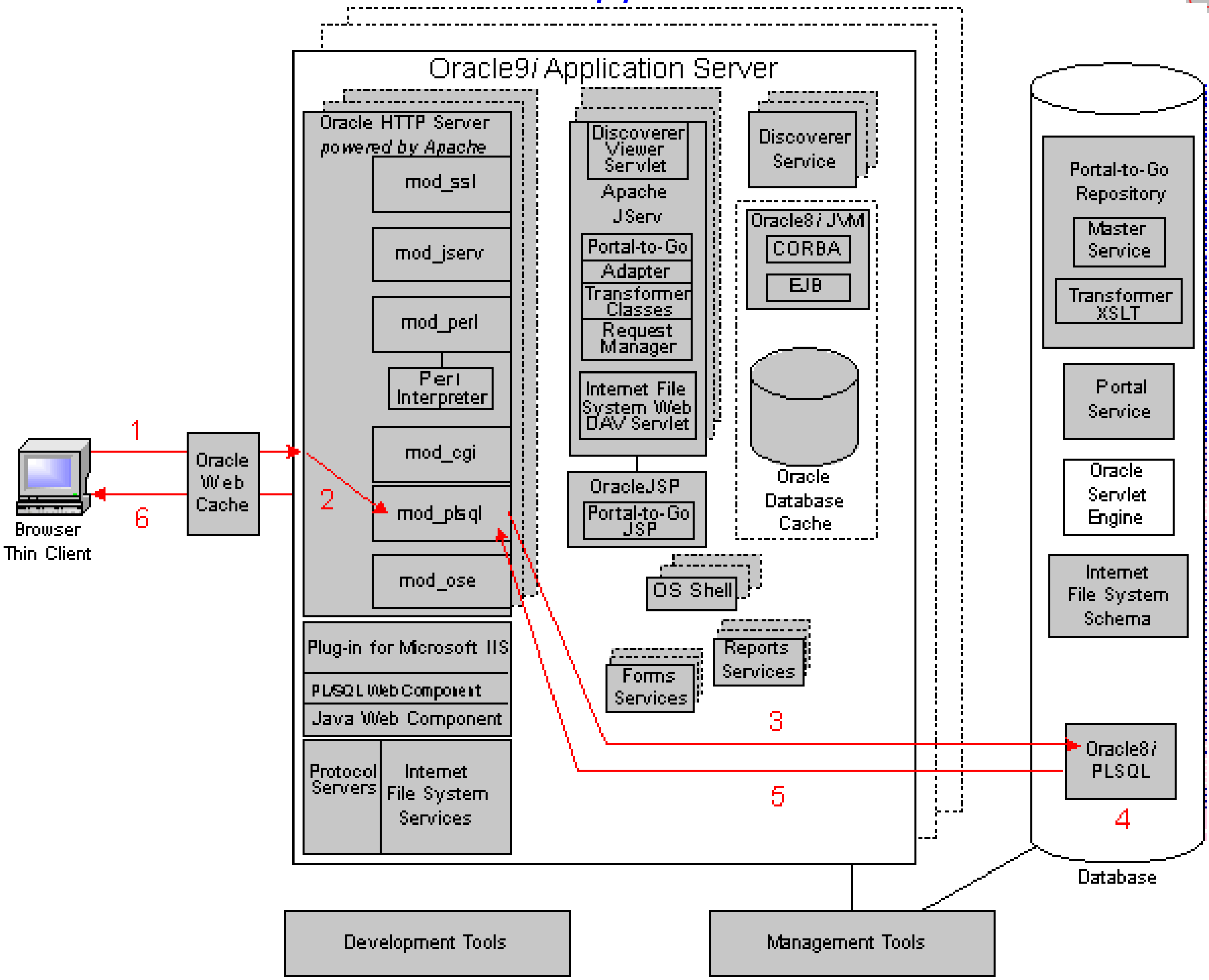
Two-Tier Computing Model



Three-tier Oracle9i Application Server Architecture



Oracle9i Application Server



9i Application Server

1.The Oracle HTTP Server receives a PL/SQL Server Page request, through Oracle Web Cache, from a client browser.

2.The Oracle HTTP Server routes the request to mod_plsql.

3.The request is forwarded by mod_plsql to Oracle8i PLSQL. By using the configuration information stored in DAD (Database Access Descriptor), mod_plsql connects to the database, prepares the call parameters, and invokes the PL/SQL procedure in the database.

4.The PL/SQL procedure generates an HTML page using data and stored procedures accessed from the database.

5.The response is returned to mod_plsql.

6.The Oracle HTTP Server sends the response, through Oracle Web Cache, to the client browser.

Access scheme

ORACLE

⇓

Accessed from PL/SQL stored procedures

⇓

Accessed from HTTP Server (iAS)

⇓

URL addresses:

http://oraweb03.cern.ch:9000/pls/cms_anode_boards.dev/display.board
http://oraweb03.cern.ch:9000/pls/cms_anode_boards.dev/board_files.board_list?p_board_num=20001
http://oraweb03.cern.ch:9000/pls/cms_anode_boards.dev/board_files.board_select

PL/SQL Web Toolkit - facility to create HTML pages.

Packages:

htp, htf - generate HTML tags
owa - subprograms and functions

Loading files

Main mode: saving files.

Files contain measurements and results of analysis.
Each board - few files (text (numbers) + pictures).
Pictures can be of any format: jpeg, gif, ps, compressed ps.

HTML page: select board number

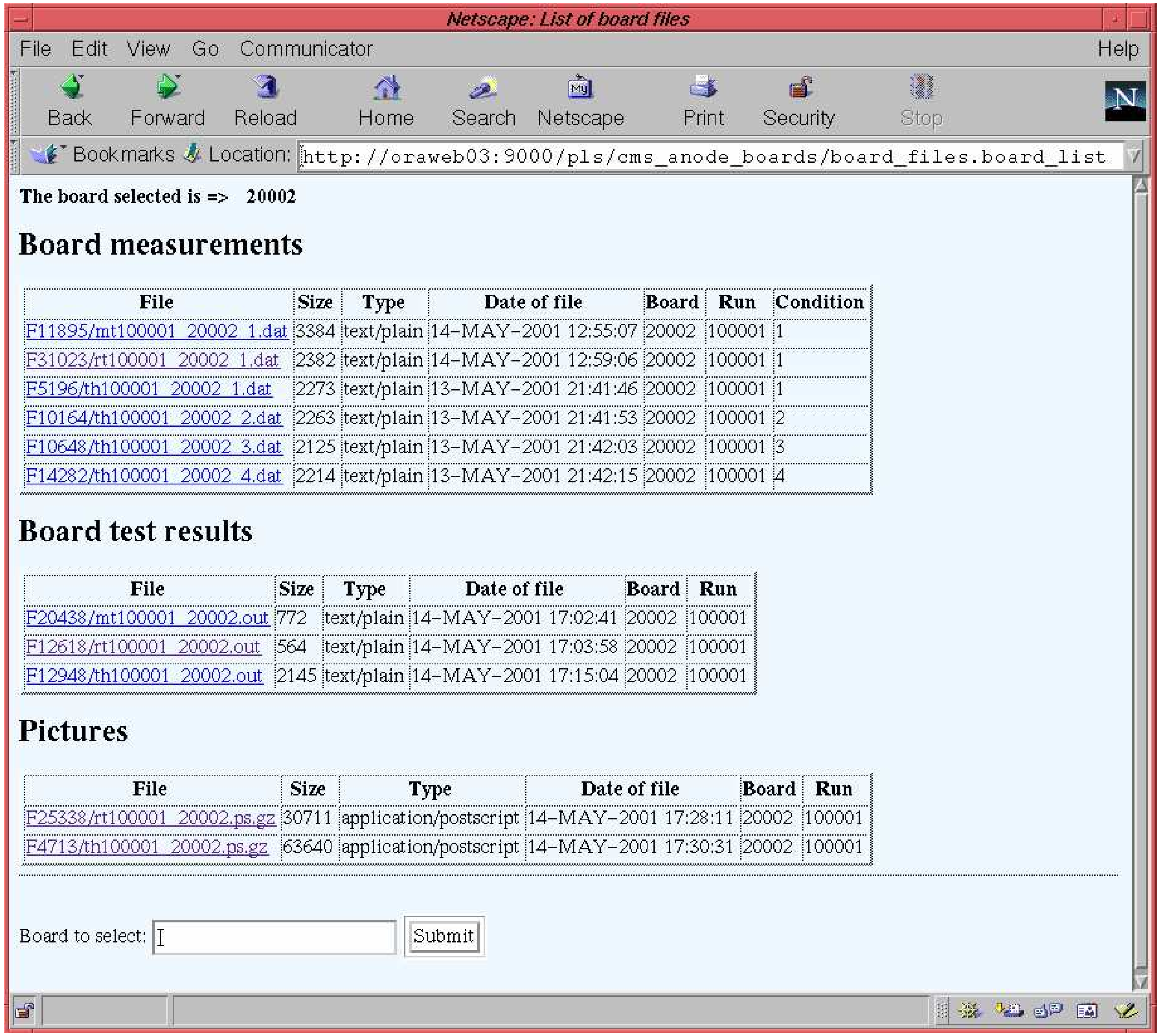
$\Downarrow$

list of files for requested board

Click on file name $\Rightarrow$ view
Shift-click $\Rightarrow$ save in external file

Files - universal and flexible mean to save information.
Main results and status of boards - in tables.

Netscape access



Netscape: List of board files

File Edit View Go Communicator Help

Back Forward Reload Home Search Netscape Print Security Stop

Bookmarks Location: http://oraweb03:9000/pls/cms_anode_boards/board_files.board_list

The board selected is => 20002

Board measurements

File	Size	Type	Date of file	Board	Run	Condition
F11895/mt100001_20002_1.dat	3384	text/plain	14-MAY-2001 12:55:07	20002	100001	1
F31023/rt100001_20002_1.dat	2382	text/plain	14-MAY-2001 12:59:06	20002	100001	1
F5196/th100001_20002_1.dat	2273	text/plain	13-MAY-2001 21:41:46	20002	100001	1
F10164/th100001_20002_2.dat	2263	text/plain	13-MAY-2001 21:41:53	20002	100001	2
F10648/th100001_20002_3.dat	2125	text/plain	13-MAY-2001 21:42:03	20002	100001	3
F14282/th100001_20002_4.dat	2214	text/plain	13-MAY-2001 21:42:15	20002	100001	4

Board test results

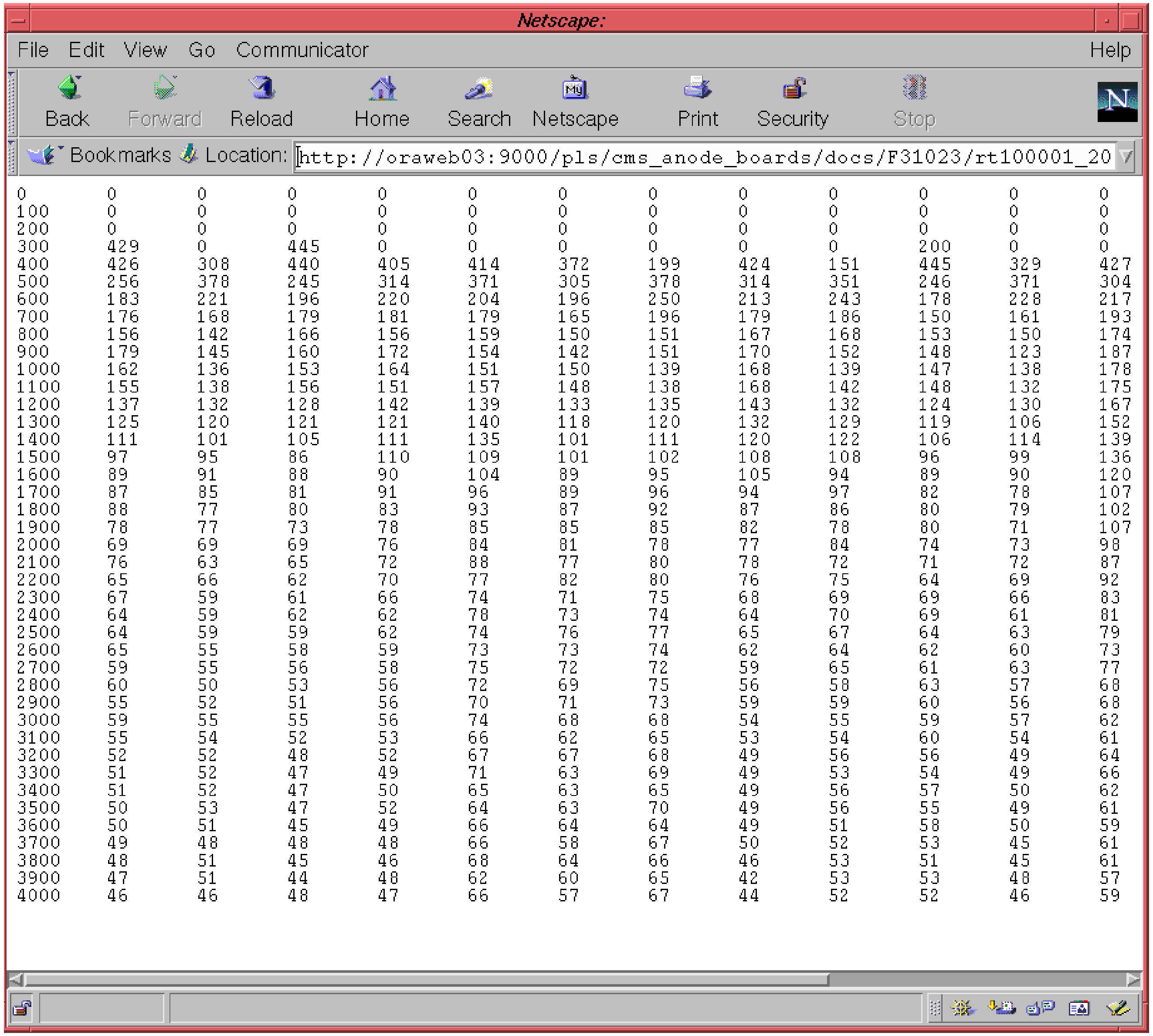
File	Size	Type	Date of file	Board	Run
F20438/mt100001_20002.out	772	text/plain	14-MAY-2001 17:02:41	20002	100001
F12618/rt100001_20002.out	564	text/plain	14-MAY-2001 17:03:58	20002	100001
F12948/th100001_20002.out	2145	text/plain	14-MAY-2001 17:15:04	20002	100001

Pictures

File	Size	Type	Date of file	Board	Run
F25338/rt100001_20002.ps.gz	30711	application/postscript	14-MAY-2001 17:28:11	20002	100001
F4713/th100001_20002.ps.gz	63640	application/postscript	14-MAY-2001 17:30:31	20002	100001

Board to select: I Submit

Netscape access



0	0	0	0	0	0	0	0	0	0	0	0	0
100	0	0	0	0	0	0	0	0	0	0	0	0
200	0	0	0	0	0	0	0	0	0	0	0	0
300	429	0	445	0	0	0	0	0	0	200	0	0
400	426	308	440	405	414	372	199	424	151	445	329	427
500	256	378	245	314	371	305	378	314	351	246	371	304
600	183	221	196	220	204	196	250	213	243	178	228	217
700	176	168	179	181	179	165	196	179	186	150	161	193
800	156	142	166	156	159	150	151	167	168	153	150	174
900	179	145	160	172	154	142	151	170	152	148	123	187
1000	162	136	153	164	151	150	139	168	139	147	138	178
1100	155	138	156	151	157	148	138	168	142	148	132	175
1200	137	132	128	142	139	133	135	143	132	124	130	167
1300	125	120	121	121	140	118	120	132	129	119	106	152
1400	111	101	105	111	135	101	111	120	122	106	114	139
1500	97	95	86	110	109	101	102	108	108	96	99	136
1600	89	91	88	90	104	89	95	105	94	89	90	120
1700	87	85	81	91	96	89	96	94	97	82	78	107
1800	88	77	80	83	93	87	92	87	86	80	79	102
1900	78	77	73	78	85	85	85	82	78	80	71	107
2000	69	69	69	76	84	81	78	77	84	74	73	98
2100	76	63	65	72	88	77	80	78	72	71	72	87
2200	65	66	62	70	77	82	80	76	75	64	69	92
2300	67	59	61	66	74	71	75	68	69	69	66	83
2400	64	59	62	62	78	73	74	64	70	69	61	81
2500	64	59	59	62	74	76	77	65	67	64	63	79
2600	65	55	58	59	73	73	74	62	64	62	60	73
2700	59	55	56	58	75	72	72	59	65	61	63	77
2800	60	50	53	56	72	69	75	56	58	63	57	68
2900	55	52	51	56	70	71	73	59	59	60	56	68
3000	59	55	55	56	74	68	68	54	55	59	57	62
3100	55	54	52	53	66	62	65	53	54	60	54	61
3200	52	52	48	52	67	67	68	49	56	56	49	64
3300	51	52	47	49	71	63	69	49	53	54	49	66
3400	51	52	47	50	65	63	65	49	56	57	50	62
3500	50	53	47	52	64	63	70	49	56	55	49	61
3600	50	51	45	49	66	64	64	49	51	58	50	59
3700	49	48	48	48	66	58	67	50	52	53	45	61
3800	48	51	45	46	68	64	66	46	53	51	45	61
3900	47	51	44	48	62	60	65	42	53	53	48	57
4000	46	46	48	47	66	57	67	44	52	52	46	59

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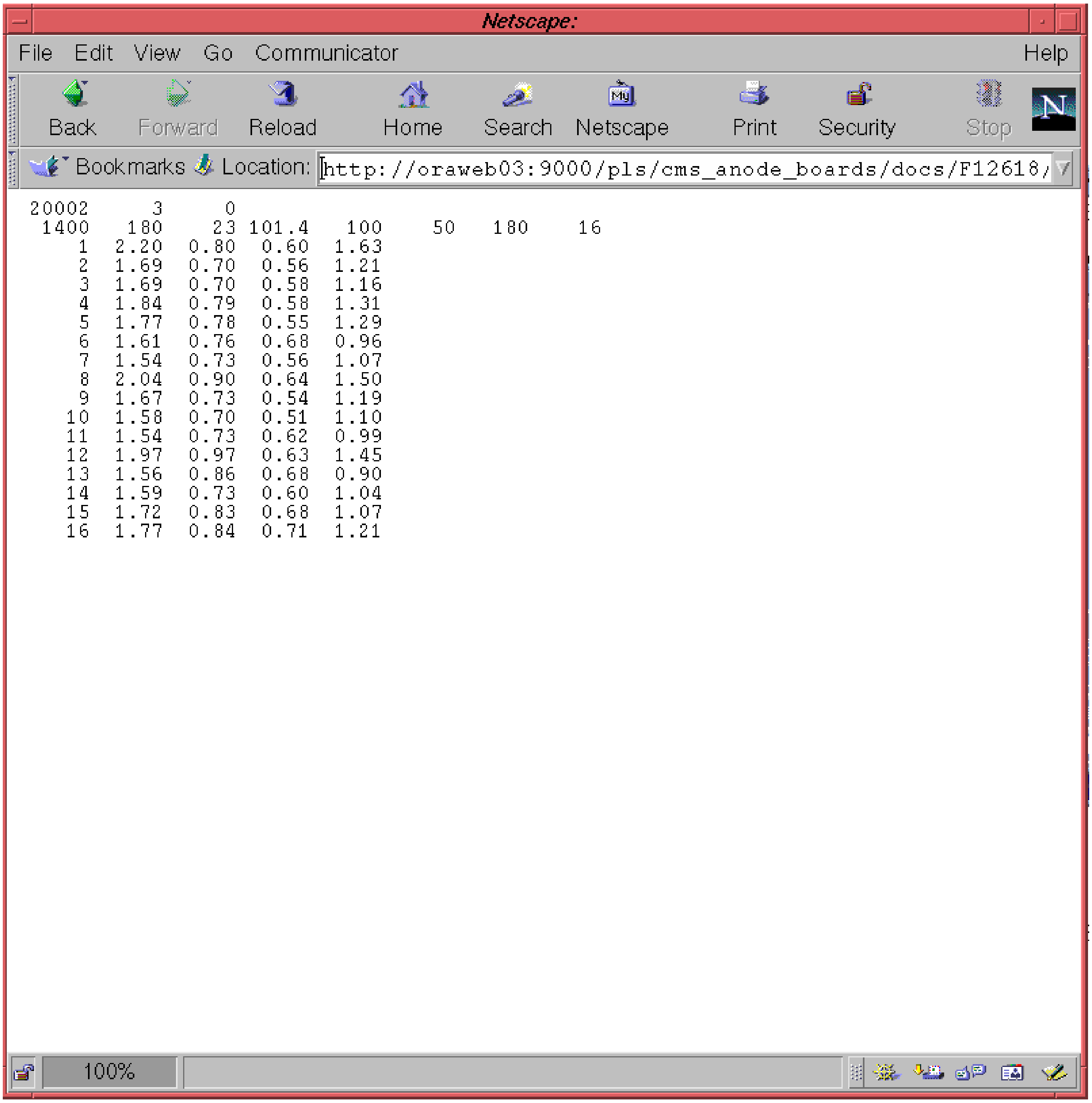
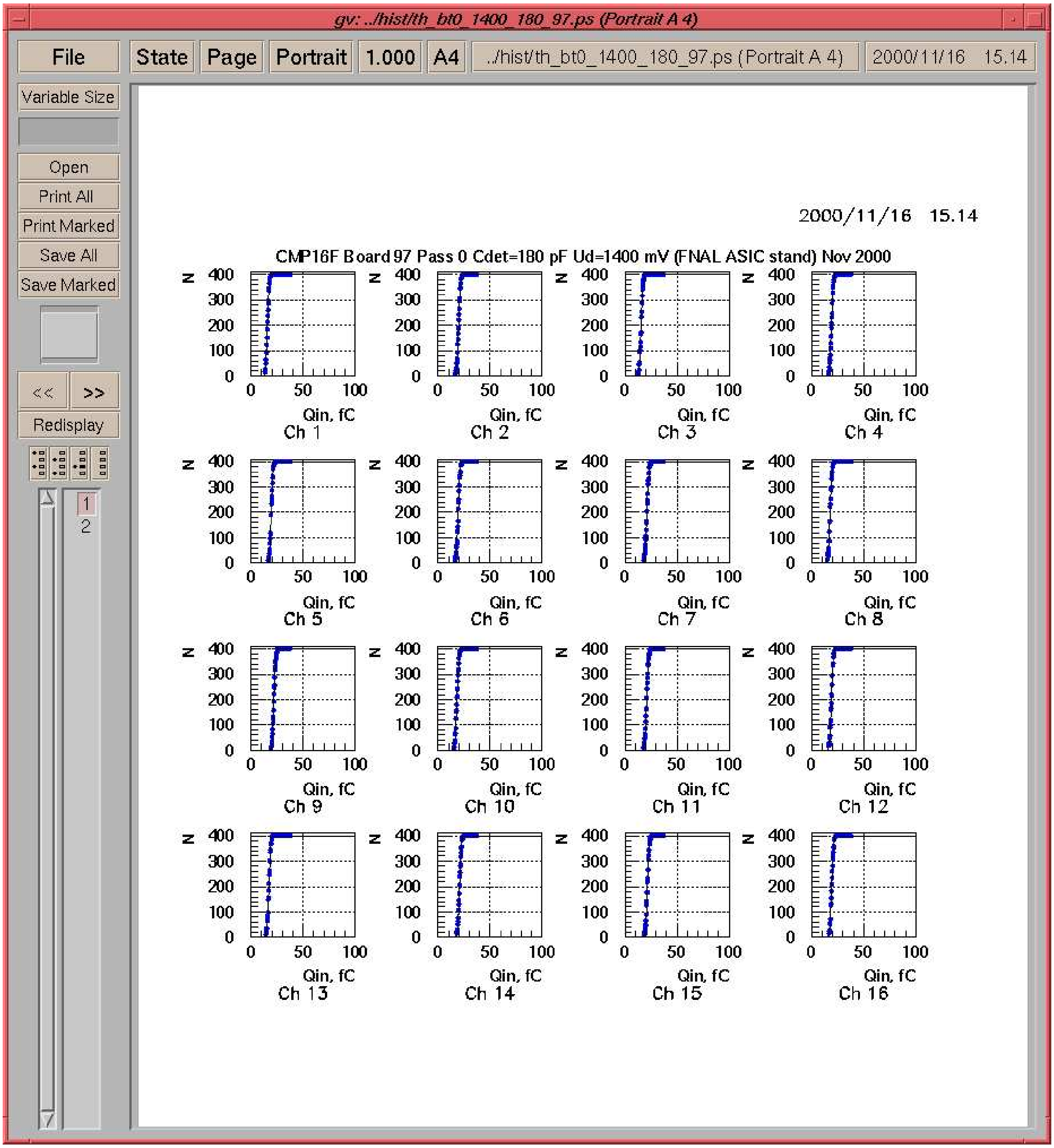
Netscape access



20002	3	0					
1400	180	23	101.4	100	50	180	16
1	2.20	0.80	0.60	1.63			
2	1.69	0.70	0.56	1.21			
3	1.69	0.70	0.58	1.16			
4	1.84	0.79	0.58	1.31			
5	1.77	0.78	0.55	1.29			
6	1.61	0.76	0.68	0.96			
7	1.54	0.73	0.56	1.07			
8	2.04	0.90	0.64	1.50			
9	1.67	0.73	0.54	1.19			
10	1.58	0.70	0.51	1.10			
11	1.54	0.73	0.62	0.99			
12	1.97	0.97	0.63	1.45			
13	1.56	0.86	0.68	0.90			
14	1.59	0.73	0.60	1.04			
15	1.72	0.83	0.68	1.07			
16	1.77	0.84	0.71	1.21			

Netscape access



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Access from program

LWP - Library for WWW access in Perl.

$ua = new LWP::UserAgent;
$response = ua\rightarrow$request(...URL...);
$response$\rightarrow$content

To upload files:

Server in C

$\Downarrow$

Calls Perl scripts

EDMS

Save files in a structure:

CSC chamber $\Rightarrow$ object
test (one of 24) $\Rightarrow$ document

$\Downarrow$

files

File server + Oracle catalogue
No imposed limitation on space

MTF/Travelers system
(Manufactoring and Test Folder)

System will be available by the end of July.