Database for Anode Board Production and Testing

Igor Vorobiev
Carnegie Mellon University

Endcap Muon Meeting
CERN
15-16 June 2001

CMS week
Catania (Sicily)
18-22 June 2001
Oracle was selected by CERN in 80-s.

Long time available and well developed 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
Since version 8 - new features.

Unstructured data - **LOB** (Large O**B**jects (up to 4 Gbytes)):
- **BLOB** (Binary Large Objects)
- **CLOB** (Character Large Objects)
- **BFILE** (Reference to a file)

Internet access $\rightarrow$ **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

Client Tier 1

User Interface

Application Logic

Database Server Tier 2

Database

Three-tier Oracle9i Application Server Architecture

HTTP Clients

Client Tier 1

Oracle9i Application Server

Application Server Tier 2

Oracle9i Application Server

Application Logic

Database Tier 3

Database
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

\[\rightarrow\]

Accessed from PL/SQL stored procedures

\[\rightarrow\]

Accessed from HTTP Server (iAS)

\[\rightarrow\]

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:

http, 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 ⇒ view
Shift-click ⇒ save in external file

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

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Netscape access
Access from program

**LWP** - Library for WWW access in Perl.

```perl
$ua = new LWP::UserAgent;
$response = $ua->request(...URL...);
$response->content
```

To upload files:

**Server in C**

```
\[\]
```

**Calls Perl scripts**
Save files in a structure:
CSC chamber $\Rightarrow$ object
test (one of 24) $\Rightarrow$ document
  ↓
files

File server + Oracle catalogue
No imposed limitation on space

MTF/Travelers system
(Manufacturing and Test Folder)

System will be available by the end of July.