
Oracle Multimedia

Managing Medical and Other Specialty Data

presentation for:



Oracle OpenWorld
September 21 – 25, 2008

Daniel A. Morgan



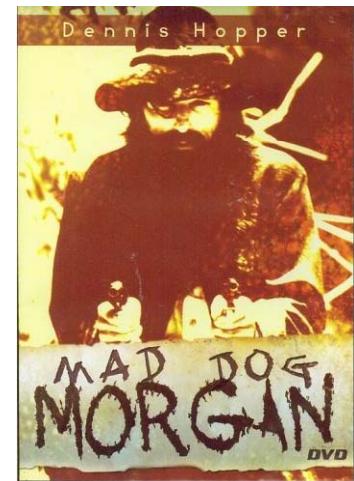
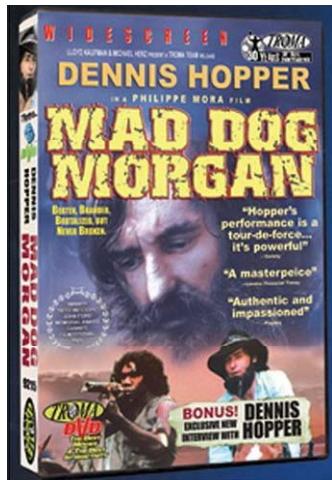
Who Oracle thinks I am?

- Daniel Morgan – damorgan@u.washington.edu
- Oracle Ace Director 
- University of Washington
 - Wrote UW Oracle curricula
 - Primary program instructor - 8 years
- The Morgan behind [Morgan's Library](http://www.psoug.org/library.html) on the web
 - www.psoug.org/library.html
- Education Chair: PSOUG 
- Member: UKOUG 
- Frequent speaker – OOW and user group events
- Beta tester: 10g, 11g, and TimesTen
- Oracle since version 6

Daniel A. Morgan



Who I really am



Daniel A. Morgan



Who I really am

"AUSTRALIA'S MOVIE-MAKING BREAKTHROUGH" -- THE ENTERTAINER

LLOYD KAUFMAN & MICHAEL HERZ PRESENT A TROMA TEAM RELEASE

**DENNIS HOPPER
MAD DOG MORGAN**

A BITCH OF AN ACTION FILM!

"An excellent early example of the Australian revival, this is a pacy, violent bushranger saga..." -- Time Out Film Guide

Dennis Hopper ("Blue Velvet," "Easy Rider") plays Dan Morgan, the infamous real-life 1800's outlaw. Morgan is an Irish immigrant working as a gold digger in the treacherous Australian brush. When his comrades reject him, Morgan resorts to stealing horses and is caught and sentenced to jail. After years of abuse and brutality he is released and falls back into his bandit ways. Soon Morgan is wanted at any price, dead or alive, setting the backdrop for this intense and riveting thriller!

"Mad Dog Morgan" was a 1977 theatrical hit world-wide and was nominated by the Australian Film Institute Award **BEST DIRECTOR** (Philippe Mora) and **BEST ACTOR IN A SUPPORTING ROLE** (Bill Hunter).

LLOYD KAUFMAN & MICHAEL HERZ PRESENT A TROMA TEAM RELEASE OF A PHILIPPE MORA FILM
"MAD DOG MORGAN" STARRING DENNIS HOPPER, JACK THOMPSON, DAVID GULPILLI, FRANK TIRING
DIRECTOR OF PHOTOGRAPHY MIKE MOLLOY, BASED ON THE BOOK "MORGAN" BY MARGARET CARNEGIE
SCREENPLAY BY PHILIPPE MORA
PRODUCED BY JEREMY THOMAS, DIRECTED BY PHILIPPE MORA

RUNNING TIME: APPROX. 90 MINUTES
TROMA 30 YEARS OF REEL INDEPENDENCE
www.troma.com www.tromadisco.com

SHOP ONLINE AT www.tromadisco.com
FOR DVDS, JEWELRY, T-SHIRTS, MUSIC,
COLLECTIBLES AND LOTS MORE!
TO ORDER BY PHONE CALL:
1-800-83-TROMA
©MMV Troma Entertainment Inc. Distributed by Troma Team Video

NO REGIONAL CODING PLAYABLE WORLDWIDE
All Region DVD
7 90357 92159 1

DENNIS HOPPER
MAD DOG MORGAN
9215

FIERCE DVD EXTRAS!

- Informative and inspiring introduction by Lloyd Kaufman, President of Troma Entertainment and creator of The Toxic Avenger!
- Fascinating interview with Philippe Mora, director of "Mad Dog Morgan!"
- xxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
- xxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
- xxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
- The Make Your Own Damn Movie Box Set-- film school in a box!
- Original theatrical trailers
- "Radiation March" and more!!!

**LLOYD KAUFMAN AND MICHAEL HERZ
PRESENT
A TROMA TEAM RELEASE**

DENNIS HOPPER
IS MAD DOG MORGAN

BEATEN, BRANDED, BRUTALIZED, BUT NEVER BROKEN.

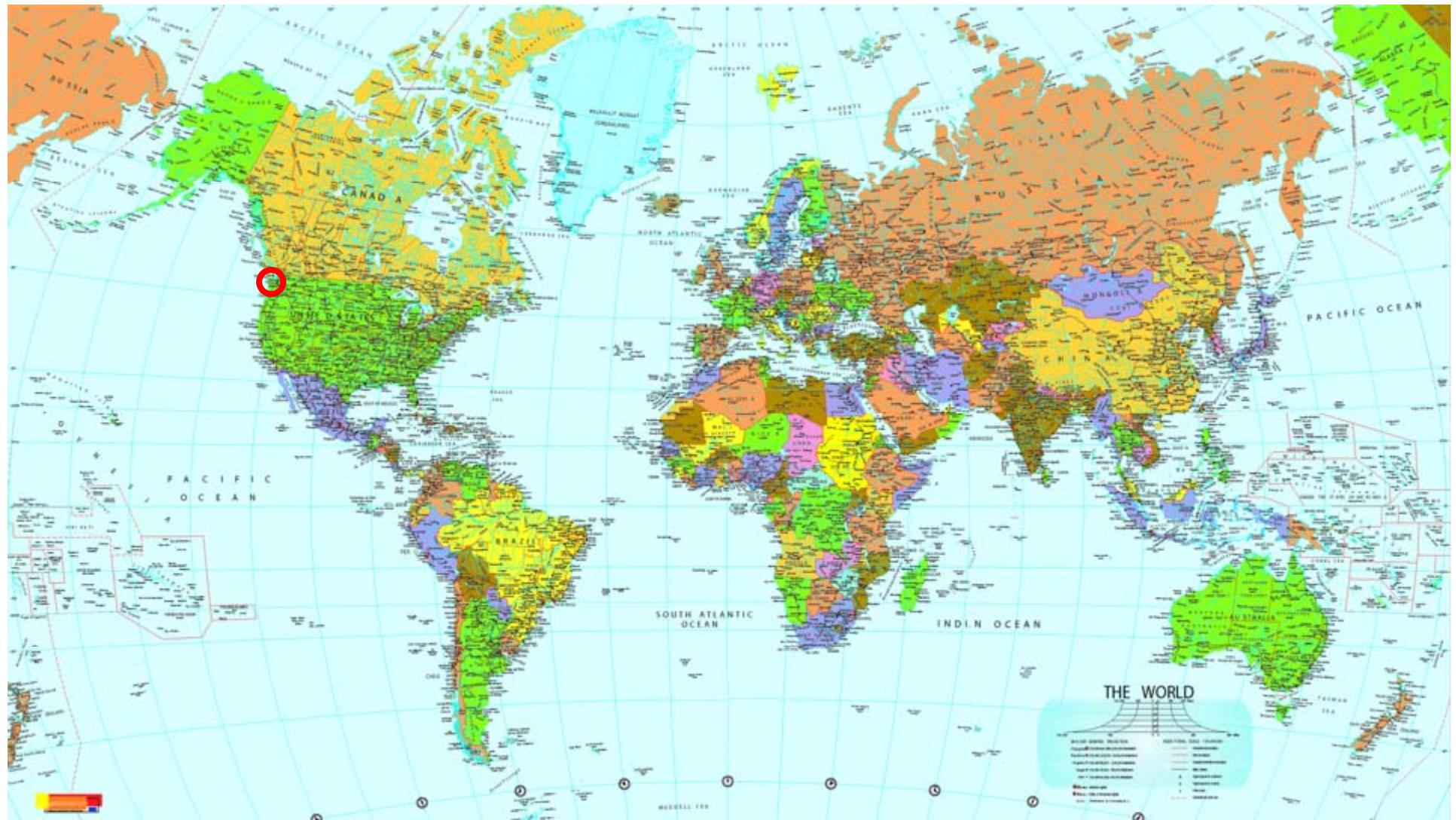
A PHILIPPE MORA FILM

WIDESCREEN

Daniel A. Morgan



What is a Puget Sound



Daniel A. Morgan



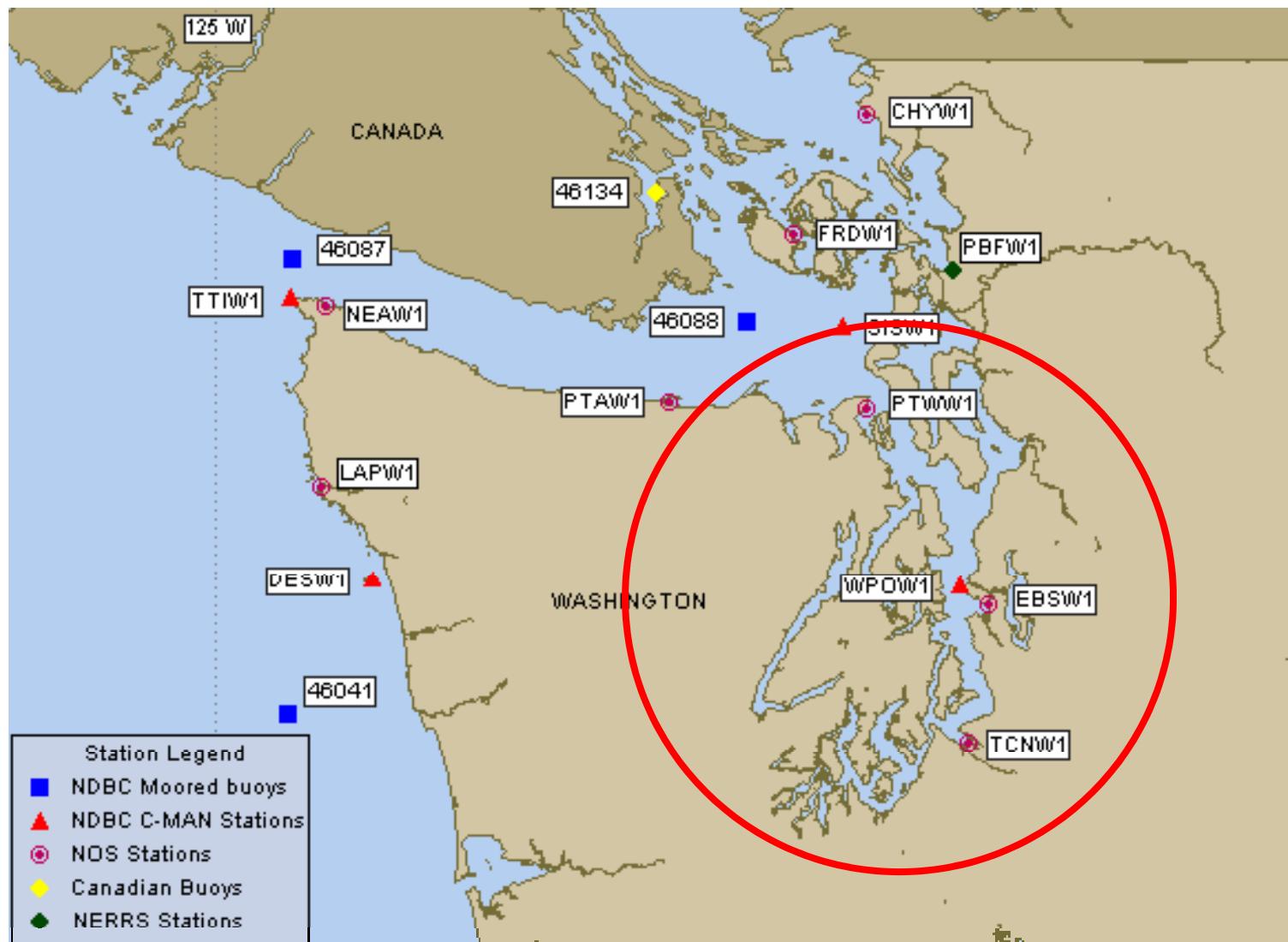
What is a Puget Sound



Daniel A. Morgan



What is a Puget Sound



Daniel A. Morgan



This "IS" the Puget Sound



Daniel A. Morgan



This "IS" the Puget Sound



Daniel A. Morgan



What is new with PSOUG

- New location
 - Bellevue, WA
- New classes including
 - 11g Data Guard
 - 11g RAC and ASM
 - e-Business Suite 11.5.10 -> Release 12
 - Developer Bootcamp
 - DBA Bootcamp
 - Audit Vault
 - Disaster Recovery & RMAN

Daniel A. Morgan



PSOUG Lab



Daniel A. Morgan



PSOUG Lab



NetApp 270C



Pillar Data Systems Axiom 500

PSOUG's Pillar Data Systems Axiom 500 SAN 7 TB of disk allows members the abilities to work with a production fibre-channel environment when learning RAC, or ASM, or other technologies and contains enough room for a full-size Apps install



Daniel A. Morgan



Website Stats

Countries					
	Countries		Pages	Hits	Bandwidth
🇺🇸	United States	us	396312	684852	18.59 GB
🇮🇳	India	in	96897	168706	4.65 GB
🇬🇧	Great Britain	gb	53627	88558	2.49 GB
🇩🇪	Germany	de	39012	70659	2.09 GB
🇨🇦	Canada	ca	32183	58344	1.46 GB
🇫🇷	France	fr	30993	53290	1.53 GB
🇮🇹	Italy	it	25045	45052	1.25 GB
🇪🇸	Spain	es	24944	42091	1.20 GB
🇧🇷	Brazil	br	23580	47045	1.31 GB
🇦🇺	Australia	au	21577	36875	998.21 MB
🇵🇱	Poland	pl	18950	33032	1016.91 MB
🇳🇱	Netherlands	nl	13620	25534	689.26 MB
🇨🇭	Switzerland	ch	13145	24019	675.81 MB
🇨🇳	China	cn	13112	22787	768.60 MB
🇲🇽	Mexico	mx	10026	18581	519.59 MB
🇷🇺	Russian Federation	ru	8962	17278	513.61 MB
🇨🇿	Czech Republic	cz	8928	17428	466.28 MB
🇵🇹	Portugal	pt	8517	12919	349.08 MB
🇸🇬	Singapore	sg	8223	13007	360.88 MB
🇭🇺	Hungary	hu	7647	13249	405.34 MB
🇧🇪	Belgium	be	7615	13030	364.80 MB
🇭🇰	Hong Kong	hk	7203	13375	357.07 MB
🇹🇷	Turkey	tr	6882	14039	365.12 MB
🇸🇪	Sweden	se	6763	12091	322.99 MB
🇮🇩	Indonesia	id	5640	9418	343.12 MB
🇦🇷	Argentina	ar	5612	10436	298.55 MB
🇦🇹	Austria	at	5415	10493	266.72 MB
🇲🇾	Malaysia	my	5034	9183	266.03 MB
🇫🇮	Finland	fi	4770	8159	205.20 MB

Daniel A. Morgan



November: Mogens Nørgaard



**Training
Dinner
Beer
Tasting**

Daniel A. Morgan



November: Mogens Nørgaard



**Training
Dinner
Beer
Tasting**

Daniel A. Morgan



What a surprise!

msnbc
A Fuller Spectrum of News

Home » Technology & Science » Tech News & Reviews

sponsored by 

Microsoft Excel fails math test

Employee blogger wrote that some multiplication results incorrect

AP Associated Press
Updated: 10:29 a.m. PT Sept 28, 2007

SEATTLE - Microsoft Corp.'s Excel 2007 spreadsheet program is going to have to relearn part of its multiplication table.

In a [blog](#) post, Microsoft employee David Gainer said that when computer users tried to get Excel 2007 to multiply some pairs of numbers and the result was 65,535, Excel would incorrectly display 100,000 as the answer.

Gainer said Excel makes mistakes multiplying 77.1 by 850, 10.2 by 6,425 and 20.4 by 3,212.5, but the program appears to be able to handle 16,383.75 times 4.

[Story continues below ↓](#)

MSN TECH AND GADGETS

Slide show: Hot TVs for fall
How to buy a mobile phone
Spam that could kill you

Related Stories [What's this?](#)

[Games boost Microsoft's search engine](#)
[Microsoft rolls out Live Search improvements](#)
[Visa issue spurs Microsoft office in Canada](#)

Most popular

[Most Viewed](#) [Top Rated](#) [Most E-mailed](#)

[The biggest sex mistakes men and women make](#)

Daniel A. Morgan



What is Oracle Multimedia?

- New name
 - Used to be Intermedia
- Enables the Oracle Database to store, manage, manipulate, and retrieve:
 - audio
 - documents
 - images
 - video
- Based on object-relational data types
 - OrdAudio
 - OrdDoc
 - OrdImage
 - OrdVideo



Oracle Multimedia Metadata?

- Media metadata is stored in the database under Oracle Multimedia control. Oracle Multimedia manages metadata for all the media types and may automatically extract it for audio, image, and video. This metadata includes:
 - source type
 - source location
 - source name
 - update timestamp
 - description
 - MIME type
 - encoding type
 - number of channels
 - frame width & height
 - frame resolution
 - frame rate
 - number of colors
 - extracted XML such as director or producer of a movie
 - sampling rate
 - sample size
 - compression type
 - play time
 - height & width
 - image content length
 - image content format
 - compression format
 - compression type
 - play time
 - number of frames
 - bit rate

Daniel A. Morgan

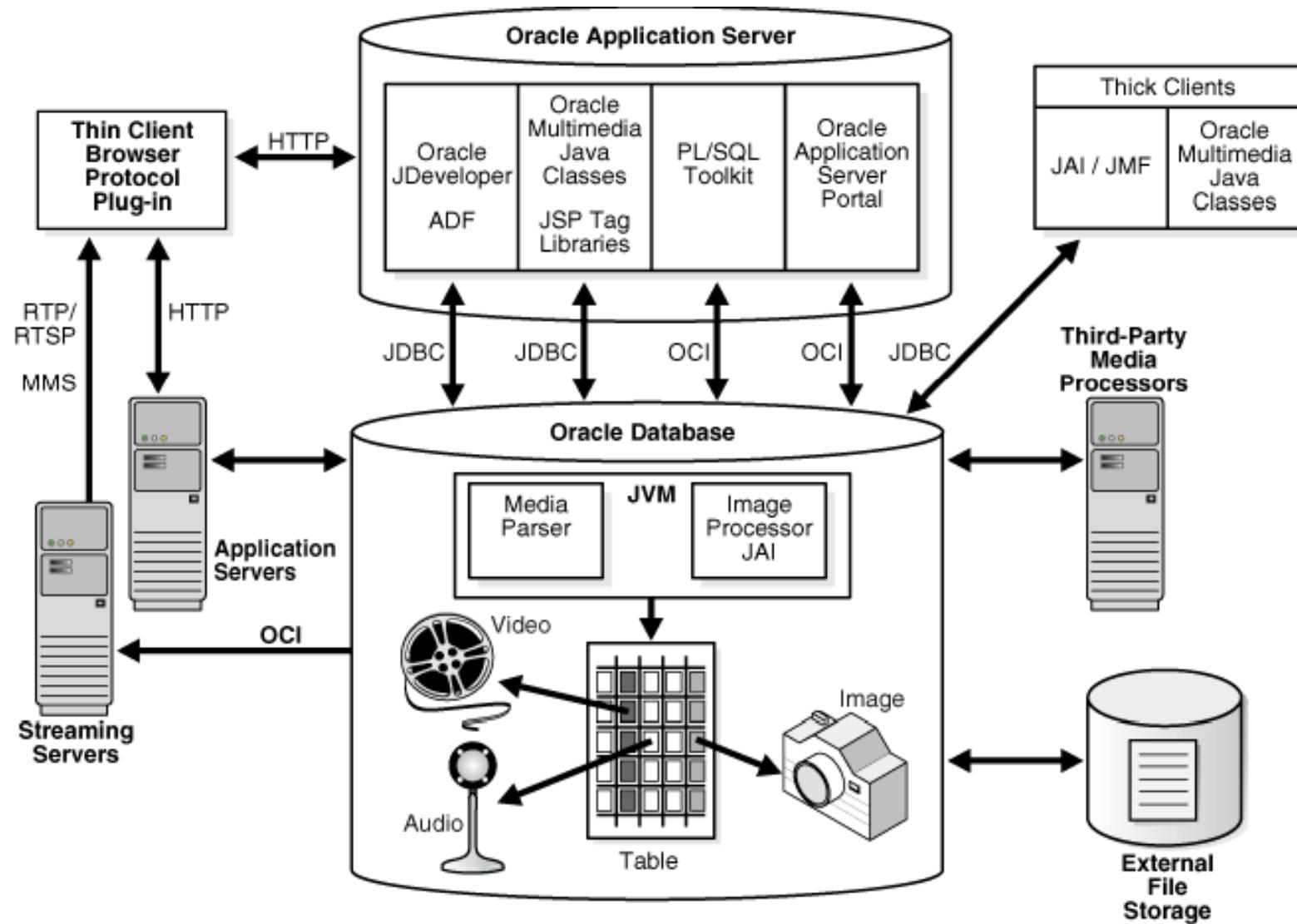


Integrated with

- SQL
- PL/SQL
- OCI
- Streaming Content
 - RealNetworks Streaming Servers
 - Microsoft Windows Media Services
- Web Technology Support
 - Oracle Multimedia Servlets and JSP Java API
 - Oracle Application Server Portal
 - Oracle Application Development Framework (ADF)
- SQL*Loader



Oracle Multimedia Architecture



Multimedia Storage

- Internally, in the database, as BLOBS
 - Up to 8GB - 128TB depending on block size
- Externally, outside the database
 - Using a BFILE pointer

Daniel A. Morgan



OrdAudio

- OrdAudio integrates the storage, retrieval, and management of digitized audio data
- Audio may be produced by an audio recorder, an audio source such as a microphone, digitized audio, other specialized audio recording devices, or even by program algorithms. Audio recording devices take an analog or continuous signal, such as the sound picked up by a microphone or sound recorded on magnetic media, and convert it into digital values with specific audio characteristics such as format, encoding type, number of channels, sampling rate, sample size, compression type, and audio duration.



Audio File Formats

- Supported Formats

- .MPG
- .MPEG
- .MP3
- .MP4
- RealNetworks
- .WAV
- and many more



OrdAudio Datatype

```
SQL> desc ordaudio
```

Name	Type
DESCRIPTION	VARCHAR2(4000)
SOURCE	ORDSYS.ORDSOURCE
FORMAT	VARCHAR2(31)
MIMETYPE	VARCHAR2(4000)
COMMENTS	CLOB
ENCODING	VARCHAR2(256)
NUMBEROFCHANNELS	NUMBER(38)
SAMPLINGRATE	NUMBER(38)
SAMPLESIZE	NUMBER(38)
COMPRESSIONTYPE	VARCHAR2(4000)
AUDIODURATION	NUMBER(38)

Daniel A. Morgan



OrdDoc

- OrdDoc integrates the storage, retrieval, and management of heterogeneous media data
- The OrdDoc type can store any heterogeneous media data including audio, image, and video data in a database column. Instead of having separate columns for audio, image, text, and video objects, you can use one column of OrdDoc objects to represent all types of multimedia.



OrdDoc Datatype

```
SQL> desc sys.orddoc
```

Name	Type
-----	-----
SOURCE	ORDSYS.ORDSOURCE
FORMAT	VARCHAR2(80)
MIMETYPE	VARCHAR2(80)
CONTENTLENGTH	NUMBER(38)
COMMENTS	CLOB



OrdImage

- OrdImage integrates the storage, retrieval, and management of digitized images
- OrdImage supports two-dimensional, static, digitized raster images stored as binary representations of real-world objects or scenes. Images may be produced by a document or photograph scanner, a video source such as a digital camera or VCR connected to a video digitizer or frame grabber, other specialized image capture devices, or even by program algorithms. Capture devices take an analog or continuous signal such as the light that falls onto the film in a camera, and convert it into digital values on a two-dimensional grid of data points known as pixels. Devices involved in the capture and display of images are under application control.



Image File Formats

- Supported Image Formats
 - .BMP (bitmap)
 - .DCM (DICOM)
 - .GIF
 - .JPG & .JPEG
 - .PCT (pict)
 - .TIFF
 - and many more



OrdImage Datatype

```
SQL> desc ordimage
```

Name	Type
SOURCE	ORDSYS.ORDSOURCE
HEIGHT	NUMBER(38)
WIDTH	NUMBER(38)
CONTENTLENGTH	NUMBER(38)
FILEFORMAT	VARCHAR2(4000)
CONTENTFORMAT	VARCHAR2(4000)
COMPRESSIONFORMAT	VARCHAR2(4000)
MIMETYPE	VARCHAR2(4000)



OrdVideo

- OrdVideo integrates the storage, retrieval, and management of digitized video data
- Video may be produced by a video recorder or camera, digitized animation video, other specialized video recording devices, or even by program algorithms. Some video recording devices take an analog or continuous signal, such as the video picked up by a video camera or video recorded on magnetic media, and convert it into digital values with specific video characteristics such as format, encoding type, frame rate, frame size (width and height), frame resolution, video length, compression type, number of colors, and bit rate.



Video File Formats

- Supported Video Formats
 - .MOV (Apple QuickTime)
 - .AVI (Microsoft Video)
 - .RM (RealNetworks)
 - .MPG
 - .MP4
 - and many more

Daniel A. Morgan



OrdVideo Datatype

```
SQL> desc ordvideo
```

Name	Type
DESCRIPTION	VARCHAR2(4000)
SOURCE	ORDSYS.ORDSOURCE
FORMAT	VARCHAR2(31)
MIMETYPE	VARCHAR2(4000)
COMMENTS	CLOB
WIDTH	NUMBER(38)
HEIGHT	NUMBER(38)
FRAMERESOLUTION	NUMBER(38)
FRAMERATE	NUMBER(38)
VIDEODURATION	NUMBER(38)
NUMBEROFFRAMES	NUMBER(38)
COMPRESSIONTYPE	VARCHAR2(4000)
NUMBEROFCOLORS	NUMBER(38)
BITRATE	NUMBER(38)



ORDSYS Schema

```
SQL> conn ordsys/ordsys
SQL> SELECT object_type, COUNT(*)
  2  FROM user_objects
  3  GROUP BY object_type;
```

OBJECT_TYPE	COUNT(*)
SEQUENCE	11
PROCEDURE	7
OPERATOR	2
LIBRARY	2
LOB	9
PACKAGE	27
PACKAGE BODY	19
TYPE BODY	17
JAVA RESOURCE	66
TABLE	68
INDEX	91
FUNCTION	34
VIEW	26
INDEXTYPE	1
JAVA CLASS	1521
TYPE	448

Daniel A. Morgan



DICOM Data Types

```
SQL> select object_name from user_objects
  2  where object_type = 'TYPE'
  3  and object_name like '%DICOM%';
```

```
OBJECT_NAME
```

```
-----  
DICOM_IMAGE179_T  
DICOM_PRIVATE_ATTRIBUTE608_T  
DICOM_RUNTIME_PREFERENC605_T  
DICOM_STANDARD_ATTRIBUT611_T  
DICOM_UID_DEFINITIONS619_T  
ORDDICOM  
ORD_DICOM_HEADER180_T
```

```
7 rows selected.
```

```
SQL>
```



ORDDICOM Data Type

```
SQL> desc orddicom
orddicom is NOT FINAL
```

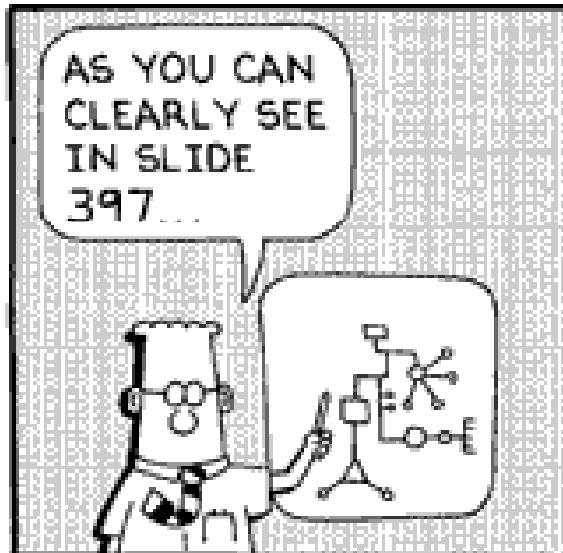
Name	Null?	Type
SOP_INSTANCE_UID		VARCHAR2(128)
SOP_CLASS_UID		VARCHAR2(64)
STUDY_INSTANCE_UID		VARCHAR2(64)
SERIES_INSTANCE_UID		VARCHAR2(64)
SOURCE		ORDDATASOURCE
METADATA		SYS.XMLTYPE
CONTENTLENGTH		NUMBER(38)
FLAG		NUMBER(38)
EXTENSION		BLOB

Daniel A. Morgan



Health Warning

Due to complaints made to the Surgeon General's office ...



Daniel A. Morgan



The balance of this presentations will be:

Live in SQL*Plus

**The source code for all demos can found in
Morgan's Library at www.psoug.org under
DICOM**

You are now entering ...

Daniel A. Morgan



... a ...



Daniel A. Morgan

