

Can I be a DBA too? Mentoring a non-DBA

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Session # 606

Speaker Qualifications

- Siddha Upadhye – Sr. Engineer, Network Solutions
- Siddha is a Sun Certified Java Developer.
- Siddha possesses 5+ years hands-on experience as a Java/J2EE developer.
- Overall, 8+ years experience as a Systems Analyst and Programmer in Internet and Client/Server implementations.

Speaker Qualifications

- Suhas Upadhye – Sr. DBA, Niwara LLC
- Suhas is an Oracle10g Certified Professional.
- Suhas possesses 8+ years hands-on experience in 'process' and 'data' modeling areas, data definition (meta-data), and other data management skills.
- Overall, 15+ years experience as a Systems Analyst and Programmer in Internet and Client/Server implementations.

Introduction: Project Crisis

- All the requirement specifications already nailed down.
- All process diagrams, data-flow-diagrams, entity-relationship diagrams, etcetera have been now flushed out and also the web application has been coded, unit and system tested and thus is all ready to go.
- The project is going live in six weeks...
- **BAM! Wowsie!!**
- You are going to loose your DBA and you need him to get the Lead Oracle developer up to speed.
- What must the Database Administration/Architecture hand-over document say?

What is covered?

- Blueprint of a Complex Project
- Details on Environment Setup
- Oracle Database Set-up Parameters
- Database versioning
- Code Reviews
- Explain-Plans – document them
- Explain Plan Operations and Cost explained
- Oracle Meta-Data Tables
- Sample Database Architecture – A Birds Eye View
- Sample Database Archival Strategy
- Sample Handover Checklist
- Additional Aspects
- Summary

What is NOT covered?

The topics herein are great topics in their own right and would merit their own separate sessions.

- Qualities that are necessary to be a DBA
- Qualities of a DBA-Mentor
- A 60-minute crash course on 'How to be a DBA'
- A 60-minute crash course on 'How to be a DBA-mentor'
- Explanation of Oracle Internals

Blueprint of a Complex Project

- Relational Database
- Open, industry-standard hardware platform and operating environment
- Browser-based interface to facilitate local and remote connectivity to the new system
- Organization seeks sub-second response time
- Expects the new system to be available 24 hours a day, 7 days a week
- Flexibility to interface with other organization systems, messaging systems, and information clearing houses
- Additional opportunities for customer self-service
- Flexible reporting and statistical analysis tools to users and organization management

Database Documents

- Design
 - Logical ERD
 - Physical Design
- Administration
 - Database configuration information
 - Database passwords by instance
 - Current database management processes
 - Briefly outline the current database development model
 - Instance backup procedures
 - UNIX batch scripts
 - Strategy and prototypes of database security implementations
 - Loading/conversion scripts

Comparing Setup Parameters

```
WITH zzz as
(select a.name as PARNAME  from v$system_parameter@ProjDEV3 a
                                , v$system_parameter@ProjTST1 b
   where trim(a.name) = trim(b.name)
   and a.value <> b.value
)
select substr(z.paname,1,32) PARAM_NAME
, substr(a.value,1,50) ProjDEV3
, substr(b.value,1,50) ProjTST1
from zzz z
, v$system_parameter@ProjDEV3 a
, v$system_parameter@ProjTST1 b
where a.name = z.paname
and b.name = z.paname
and z.paname not in ( 'audit_file_dest'
                    , 'background_dump_dest'
                    , 'control_files'
                    , 'core_dump_dest'
                    , 'db_name'
                    , 'dispatchers'
                    , 'instance_name'
                    , 'log_archive_dest_1'
                    , 'rdbms_server_dn'
                    , 'service_names'
                    , 'user_dump_dest'
                    )
order by 1;
```

Oracle DB Setup Parameters

PARAM_NAME	ProjDEV3	ProjPRD2
-----	-----	-----
aq_tm_processes	2	0
compatible	10.1.0.2.0	9.2.0
cpu_count	2	6
db_file_multiblock_read_count	37	8
db_unique_name	bmvdev3	bmvprd2
job_queue_processes	12	1
log_archive_format	%t_%s_%r.dbf	%t_%s.dbf
log_buffer	524288	786432
log_checkpoint_interval	1	0
log_checkpoint_timeout	0	1800
parallel_max_servers	40	120
shared_servers	1	10
sp_name	bmvdev3	bmvprd2

DATABASE VERSIONING

- Incremental Versioning
- Complete Versioning
- Pros/Cons

DATABASE VERSIONING Tools

- Oracle Change Management Pack
- ErWin - CA
- DBArtisan – Embarcadero

To do:

- Reverse Engineer database and Schema Definitions
- Capture and version baselines
- Compare Databases and schemas, or baselines
- Copy database objects with data, with a subset of the data, or without data
- Update database object definitions (ALTER TABLE)

Code Reviews

- **Promote good coding standards**
 - Rows returned
 - Columns selected
 - Avoid unnecessary sorting
 - Sub-queries
 - Use Inline views
 - Join predicates
- **Document sample explain plans**

Cost in Explain Plan

- ***Asktom.oracle.com***
 - *cost is not misleading*
 - *cost is just a number, a number that is the result of an algorithm*
 - *an algorithm that takes many inputs, many parameters*
 - *an algorithm that given all of the inputs and parameters returns the query plan with the lowest cost for that particular query*
 - *an algorithm that if the inputs are correct, the parameters good -- returns the query plan that should run the fastest.*
 - *an algorithm implemented by mere humans, so.....*

Oracle Meta-Data Tables

- **ALL_TABLES**: Stores information on all tables you have access to.
- **ALL_TAB_COLUMNS**: Stores information on columns of all tables you have access to.
- **ALL_INDEXES**
- **ALL_IND_COLUMNS**

Oracle Meta-Data Tables

- Why does a search on PERSON_NAME not do a Full-Table-Scan, but similar query on ORGANIZATION_NAME do it? Are the indexes set differently on those tables? How can I find out the answer to this myself?

```
select ai.table_name
      , ai.index_type
      , ai.index_name
      , substr(aic.column_name,1,30) column_name
from all_indexes ai
join all_ind_columns aic on (ai.index_name =
    aic.index_name)
where ai.owner = 'PROJ_OWNER'
and ai.table_name in ('PERSON_NAME',
    'ORGANIZATION_NAME')
order by 1,2 desc
;
```


Oracle Meta-Data Tables

TABLE_NAME	INDEX_TYPE	INDEX_NAME	COLUMN_NAME
-----	-----	-----	-----
ORGANIZATION_NAME	NORMAL	ORGANIZATION_NAME_IF	CUSTOMER_ID
ORGANIZATION_NAME	NORMAL	ORGANIZATION_NAME_PK	ORGANIZATION_NAME_ID
PERSON_NAME	NORMAL	PERSON_NAME_PK	PERSON_NAME_ID
PERSON_NAME	NORMAL	PERSON_NAME_IDX1	CUSTOMER_ID
PERSON_NAME	FUNCTION-BASED NORMAL	PERSON_NAME_FX1	UPPER("LAST_NAME")
PERSON_NAME	FUNCTION-BASED NORMAL	PERSON_NAME_FX1	UPPER("FIRST_NAME")
PERSON_NAME	FUNCTION-BASED NORMAL	PERSON_NAME_FX1	UPPER("MIDDLE_NAME")
7 rows selected.			

DATABASE ARCHITECTURE : A BIRDS EYE VIEW

Sr. No.	Box Name	Configuration	Instances held currently	Oracle Version
1.	DBDEV	2 processors 4 Gig	ProjDEV1 ProjDEV2	Oracle Database 10g Enterprise Edition Release 10.1.0.2.0
2.	DBTEST	2 processors 4 Gig	ProjTST1 ProjTST2	Oracle9i Enterprise Edition Release 9.2.0.4.0
3.	PRDDB1	6 processors 8 Gig	ProjPERF ProjPRD1	Oracle9i Enterprise Edition Release 9.2.0.4.0
4.	PRDDB2	6 processors 8 Gig	ProjPRD2	Oracle9i Enterprise Edition Release 9.2.0.4.0

DATABASE ARCHITECTURE : A BIRDS EYE VIEW

OWNER	TABLE	INDEX	FUNCTION	PACKAGE	PROCEDURE	SEQUENCE	SYNONYM	TRIGGER	VIEW
Proj_COMMON	6	2	6	1	14	0	1416	4	1
Proj_OWNER	751	3874	8	11	1	515	3	367	14
Proj_QUEUE	3	9	0	0	0	0	0	6	3
Proj_SECURITY	3	9	0	0	0	1	1330	3	0
Proj_WEB_USER	0	0	0	0	0	0	1518	0	0

Naming Conventions Used

Lookup Tables	LU_
Lookup Filter Tables	LUF_
Staging Tables	STAGE_
Security Tables	SEC_
All Surrogate PK's	_ID
Sequence Names	_SEQ
Views	_V
Constraints --Primary Key	_PK
Constraints – Foreign Key	_FK
Constraints – Unique Key	_UK
Constraints – Check	_CK
Indexes – Regular	_I
Indexes – For Foreign Keys	_IF
Indexes – Bitmapped	_IB
Indexes – Functional	_FX
Triggers	_TR

SAMPLE HANDOVER CHECKLIST

Database Instances/Release versions and IP map	<input type="checkbox"/>
Unix Database setup	<input type="checkbox"/>
Tasks involved in refreshing from PROD	<input type="checkbox"/>
Database Archival Strategy	<input type="checkbox"/>
Data Migration Support	<input type="checkbox"/>
Oracle Report Server configuration	<input type="checkbox"/>
Database Version Control process	<input type="checkbox"/>
WebLogic/Cocobase related tables	<input type="checkbox"/>

SAMPLE HANDOVER CHECKLIST

Master/Code Tables Source / Maintenance	<input type="checkbox"/>
History Schema Explanation	<input type="checkbox"/>
<Specific> Schema Objects	<input type="checkbox"/>
Roles and Profiles	<input type="checkbox"/>
Misc. files and their locations	<input type="checkbox"/>
Security Policies Implemented	<input type="checkbox"/>
Important Contact Names and Numbers	<input type="checkbox"/>
SOS List	<input type="checkbox"/>

Additional Aspects

- Database Crashes in the recent past – causes and their rectification
- Granting developers the ability to Kill their own sessions
- Setting up public/private synonyms
- Creating/Cloning databases
- DBLinks – Oracle/Heterogeneous connectivity
- Materialized Views / Partitioned tables
- RAC
- RMAN
- Oracle Patch Releases
- Regulatory requirements – SOX compliance
- Environment Specific pointers (TEST/QA)
- End Users / Stakeholders / Clients

Items Learned in this Session

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References:

www.asktom.com

Questions?



Feedback...

- Your feedback is highly appreciated.
- Use the following information in the evaluation form
 - Speaker Name : Siddha Upadhye / Suhas Upadhye
 - Session name :
 - Can I be a DBA too? Mentoring a non-DBA
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