- Reducing the multiplicity of Middle-Tier NT Servers in a validated OC Web-Deployed Environment: The secrets of multiple Forms listeners and Reports Servers on a single NT Server.

Sunil G. Singh and Anoop R. Nair

Introduction

- Sunil G. Singh and Anoop Nair of DBMS Consulting, Inc
- Specialize in large Oracle Clinical and Oracle Application implementations and long-term support

Acknowledgements

- Some techniques demonstrated here were suggestions from K. Howells of Oracle Consulting and K. Dauth of Boehringer-Ingelheim
- Thanks to the OCUG and especially the Administration Focus group for this opportunity to speak

Overview

- Examine NT Middle-Tier requirements
- Discuss number of NT OAS Server required in a enterprise environment for OC and TMS 3.2
- Examine standard, supported techniques for duplicating Middle-tier components on the same physical server
- Examine non-standard, unsupported component duplicating techniques
- Conclusion and Q/A if time permits.

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Requirement for NT Middle-Tier for Web-Deployments

- OC 3.2 and TMS 3.2 require an NT server running Oracle Application Server 4.0.8.1
- NT OAS Server also runs Forms 6.0 Server and Reports 6.0 Server
- All client code and reports are stored on the NT OAS Server

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How many NT OAS Servers are required ?

- At least one. TMS 3.2 only runs web-deployed. Conceivable to share all communication to database servers through a single NT OAS Server.
- At most, one for each database instance. This provides the most autonomy for each environment.

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How many NT OAS Servers are required ? (2)

- It is important to separate patch testing, development efforts and training environments. Standard patch will almost always include a Database component and a Forms Code component.
- 3-Tier architecture is very complex with many interdependencies. Even the slightest change from one environment to another can unexpectedly affect another environment on the same server.

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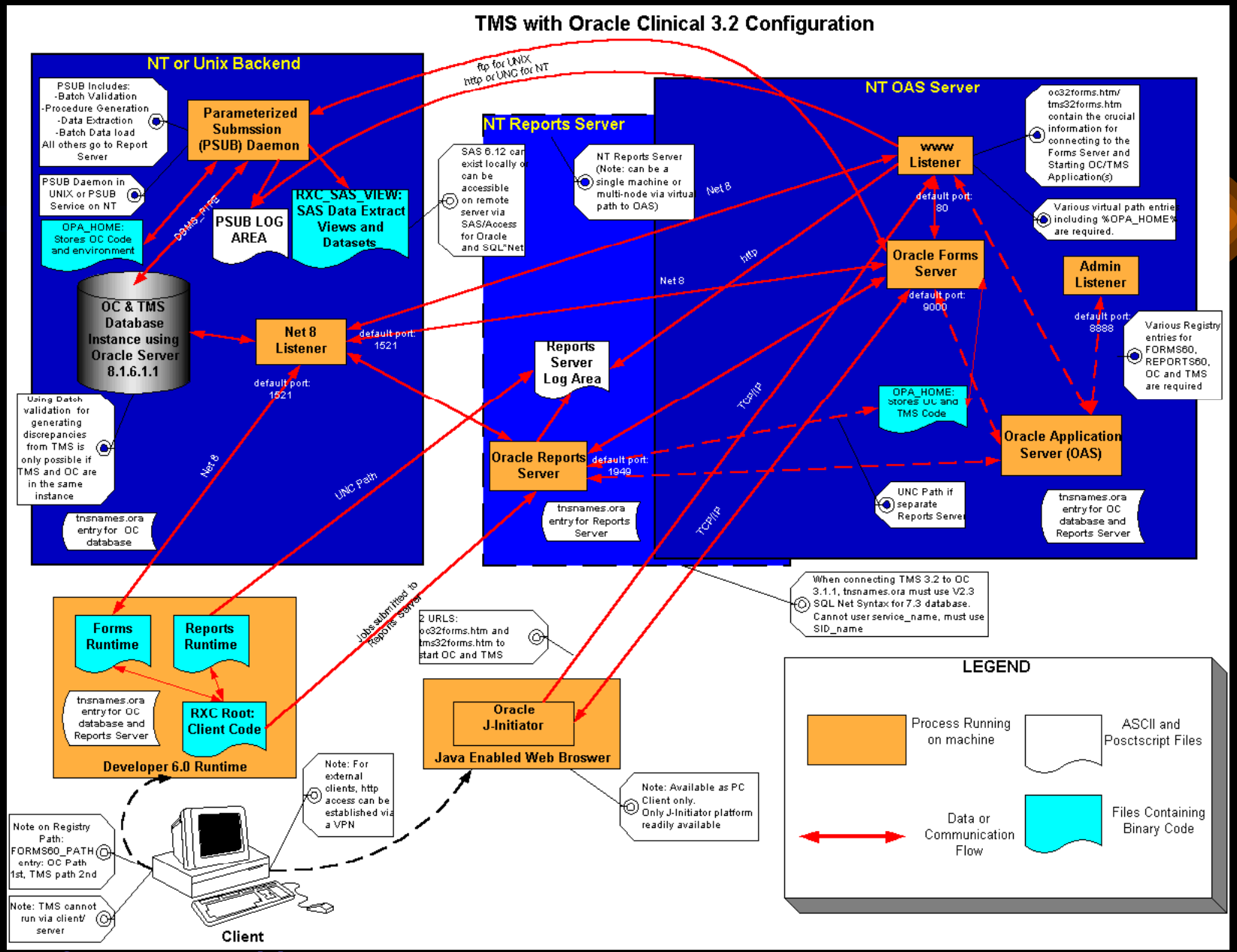

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How many NT OAS Servers are required ? (3)

- In a large enterprise, there may be several instances of OC for testing, training, development, validation and production.
- A validated environment requires complete isolation between databases and client code so that system changes, enhancements, patches, and customizations do not affect each other.

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How many NT OAS Servers are required ? (4)

- A production environment should also be completely isolated.
- Therefore, at least 3 NT OAS Servers are required, one for production, one for validation, and one for all other purposes, including testing, training, and development.
- Special techniques are required be to run redundant components on the same NT OAS Server.

Goal: Reduce number of NT OAS Servers required

- Becomes unrealistic to acquire a separate NT OAS Server for each non-production instance.
  - Prohibitively expensive
  - Administrative headache
  - Inefficient use of hardware
- Validation and Production must be separated!
- Attempt to combine all other middle tier components for all other instances on the same NT OAS Server. How can this be done ?

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Duplicating NT OAS Server components on the same machine

- Ideally, the Windows NT operating system itself
  - Always possible to install more than occurrence of the NT OS on a single machine
  - This would be a “Dual Boot” machine
  - Multiple %SYSTEM_ROOT%, one for each installed version of NT
  - Under normal circumstances, not possible to run two copies of NT at the same time on the same machine
  - Only special server partitioning software makes this possible, such as Vmware

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Duplicating NT OAS Server components: Same machine (2)

- ORACLE_HOME
- OAS Code
- Developer/2000 6.0 Runtime code
  - Forms Server
  - Reports Server
- OPA_HOME code
  - TMS Forms Code and Reports Code
  - OC Forms Code and Reports Code

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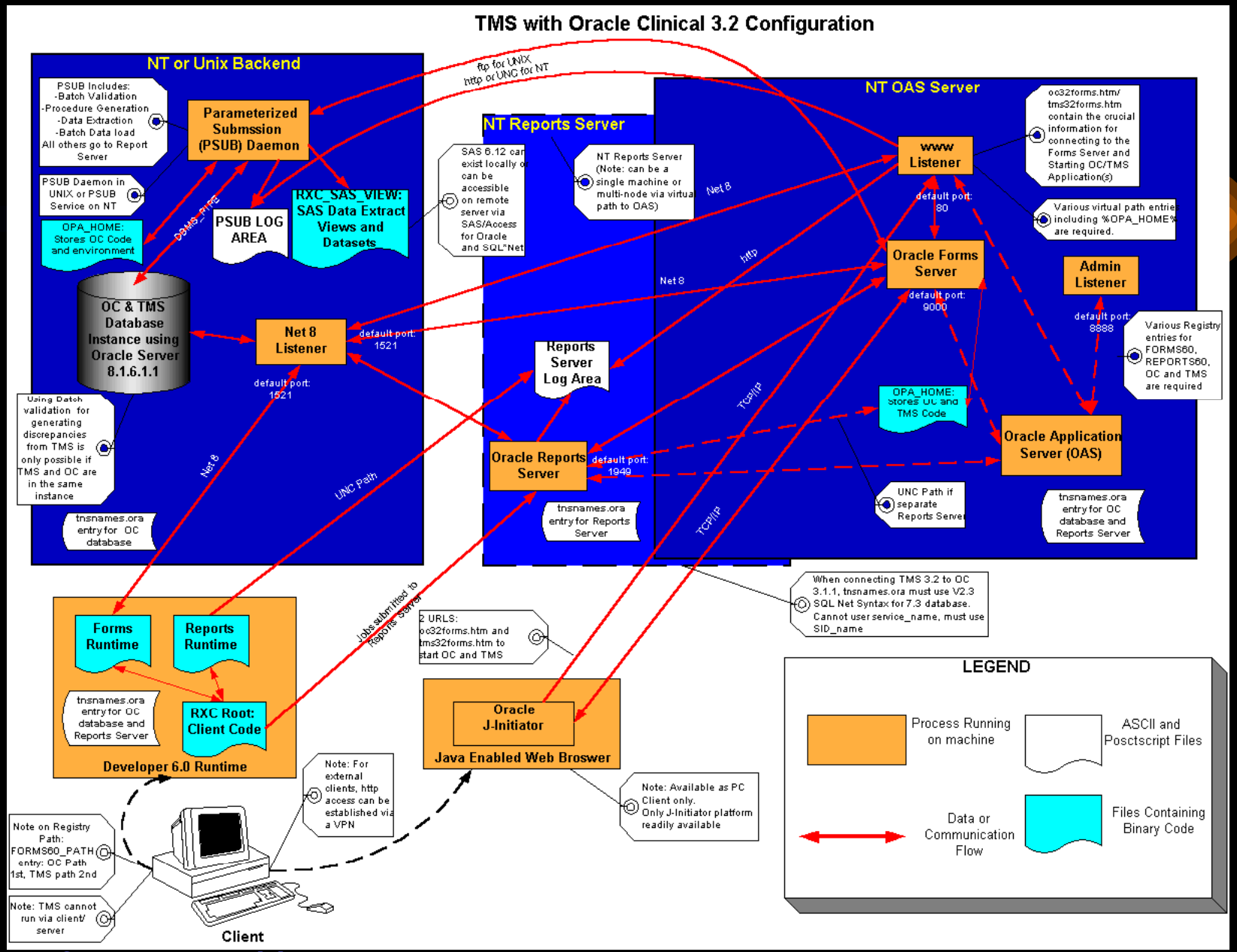

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Creating Multiple OAS Servers on the same machine

- Possible to install multiple copies of OAS on the same server using different ORACLE_HOMEs
- Use Different:
  - Website names (website40)
  - Boot port (2649)
  - www listener port (80)
  - Admin listener port (8888,8889)

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Creating Multiple OAS Servers on the same machine (2)

- Starting these multiple OAS processes on the same machine is diffiicult to automate on startup.
- The ORACLE HOME should be set before attempting to start the OAS.
- owsctl start –T should be run from the %ORACLE_HOME%\bin for the OAS being started.

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Creating separate OPA_HOME structures.

- During OC 3.2 or TMS 3.2, OPA_HOME is chosen.
- It is possible to choose a different OPA_HOME for each ORACLE_HOME on the same machine through the OUI.
- It is also possible to create additional “fake” OPA_HOME by copying the code tree to a different directory structure.
  - Very good for simple unit testing
  - Very good for patch testing

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Configuring multiple web listeners for each OPA_HOME

- For each OPA_HOME created, a set of virtual paths must be established in separate www listeners
- Duplicate listeners can be created in the same OAS Node Manager, or in separate OAS Node Managers if multiple OAS Servers are, installed **but they must have different ports**
- Must establish mapping for /opa/ for each listener and %OPA_HOME%, e.g.,
  - D:\opapps_tst\ /opa/ in www:80
  - D:\opapps_trn\ /opa/ in www2:90

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Duplicating Developer/2000 6.0 Runtime Code: Same Machine

- Not possible for Developer/2000 6.0
- It is possible to have Developer/2000 6.0 and 6i co-existing on the same server
  - Will become useful later on during upgrades to 4.0/4i
- Very difficult to have multiple Forms Services same machine, but it is possible to have the same service listening on multiple ports

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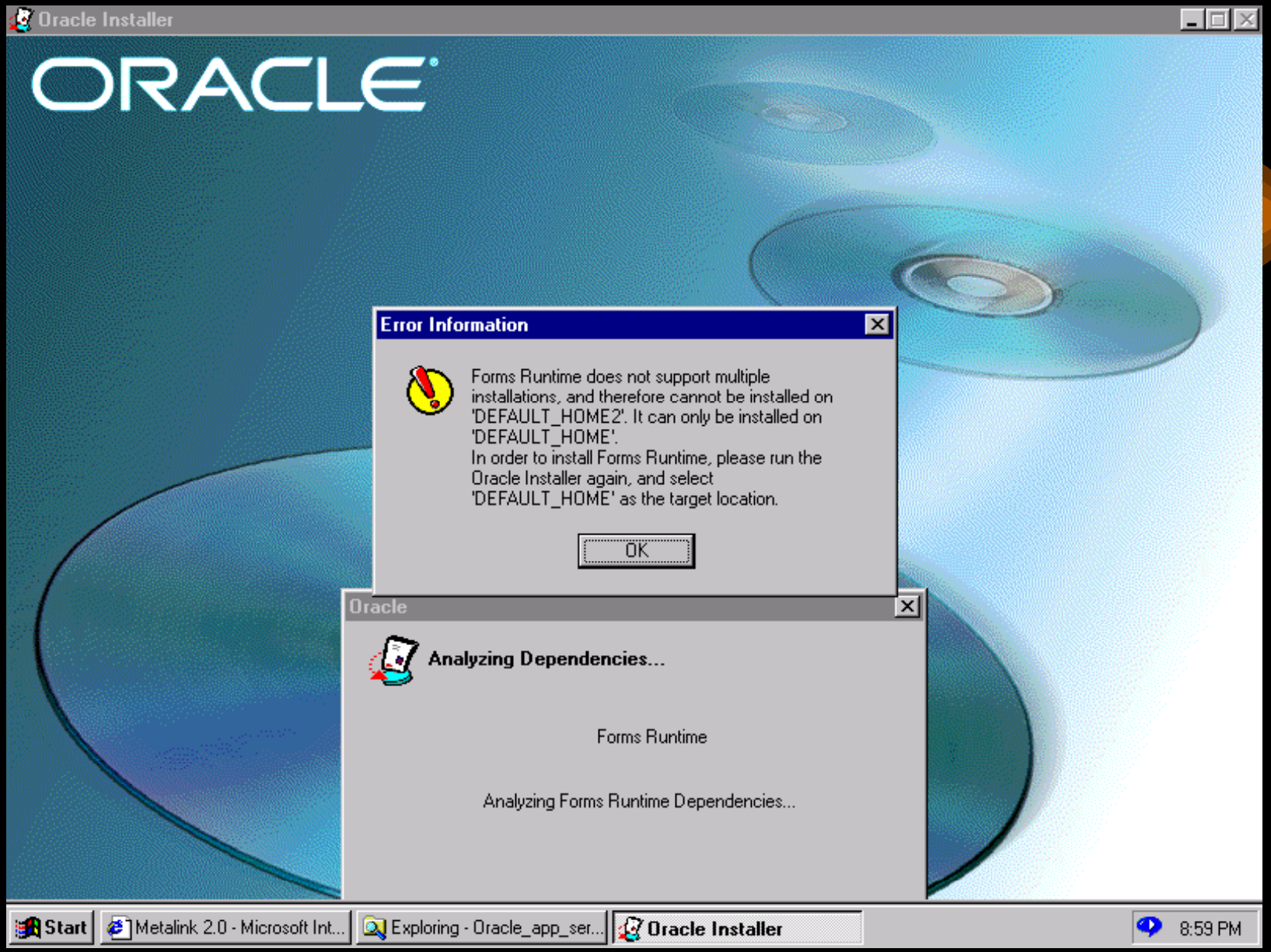

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Starting multiple Forms Listeners on different ports

- Necessary to have each Forms listener reference each separate OPA_HOME via the registry entries FORMS60_PATH and REPORTS60_PATH
- However, ORACLE_HOME has to refer to the ORACLE_HOME with Developer/2000 6.0 installed
- Start ifsrv60 –listen <port number> sets the ports.
- Can be configured with a batch file

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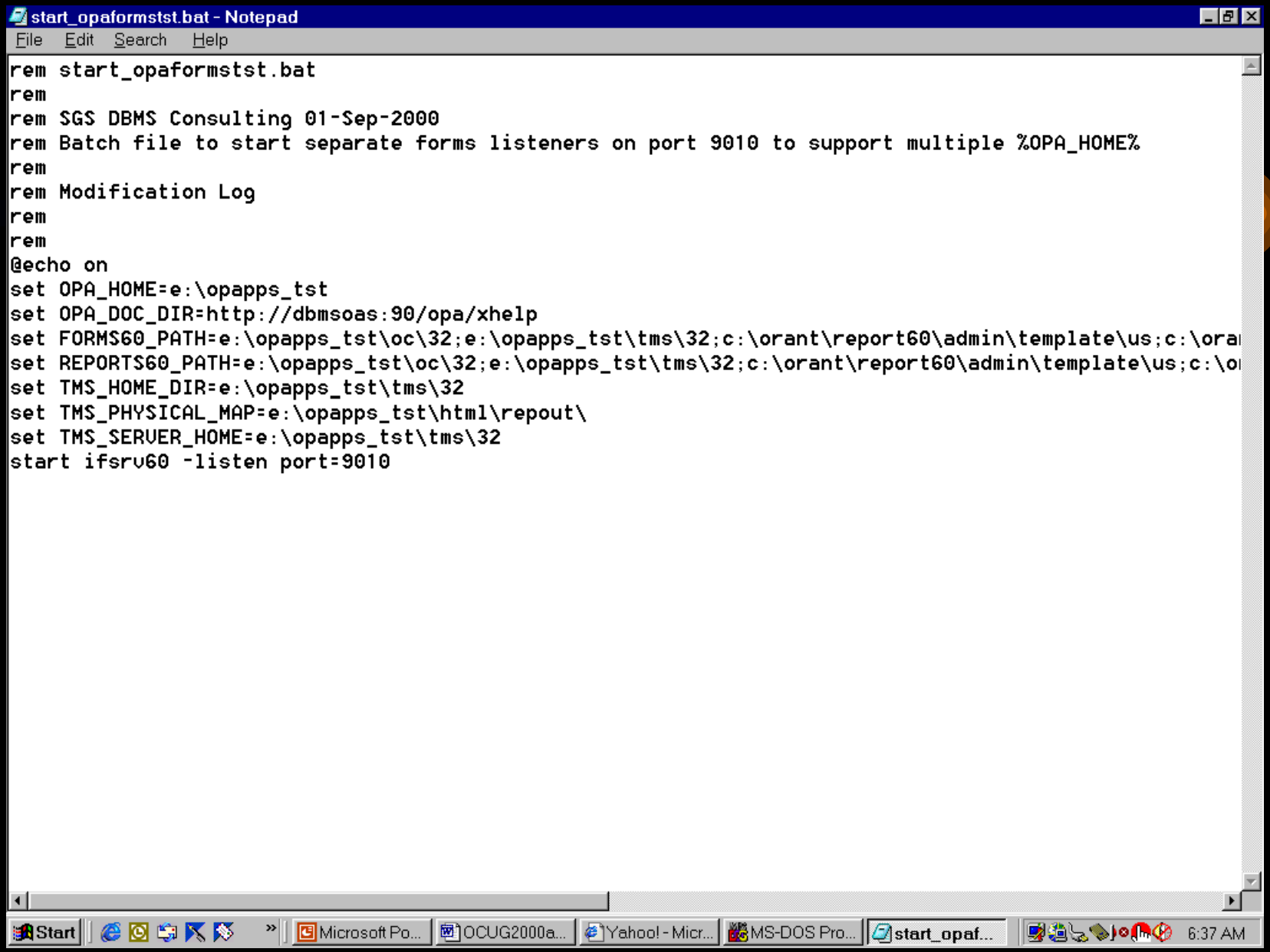

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Creating multiple Reports Services

- RWMTS60 –install <service_name> tcpip
- This service name is the same service name in tnsnames.ora.
- Each entry must be associated with a different port number.
  - Service_name=(DESCRIPTION=(ADDRESS=(PROTOCOL=TCP)(HOST=hostname)(PORT=1949)
  - Service_name2=(DESCRIPTION=(ADDRESS=(PROTOCOL=TCP)(HOST=hostname)(PORT=1950)

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Starting OC and TMS: Different Listeners and OPA_HOMEs

- Start with the oc32forms.htm and tms32forms.htm. A copy of this .htm file exists for each OPA_HOME in %OPA_HOME%\html
- Modify these files to refer to a ServerPort for each Forms Listener running on a different port. Since these Forms Listeners were started with different registry keys, they will use the OC and TMS code in their respective OPA_HOMEs

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Starting OC and TMS: Different Listeners and OPA_HOMEs (2)

- Each version of the oc32forms.htm and tms32forms.htm can be invoked by the separate www listeners created for each OPA_HOME
- Each www listener listens on a separate port, which can be referred to in a URL:
  - http://oasserver:90/opa/oc32forms.htm
- Separate URL => Separate www listener => Separate oc/tms32forms.htm => Separate ServerPort => Separate Forms Listener => Refers to Separate OPA_HOME, but on the same NT OAS machine !

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Standard Component Duplication for an NT OAS Server: Summary

- Can install multiple ORACLE_HOMEs and OAS Servers
- Can install mutiple OPA_HOMEs
- Can NOT install multiple Developer/6000 6.0 runtime
  - Can not separate patches to the runtime engines
- Simpler to have a single ORACLE_HOME, copy the OPA_HOMEs, with multiple Forms listeners.
  - Allows patches to Forms and Reports application code to be separated

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Using VMware for NT OAS Server Partitioning

- Allows mutiple copies of NT to run at the same time by starting one NT session within another.
- Still require separate ports for OAS and Forms/Reports listeners
- Very inexpensive, about $300 per server.
- Very experimental. Can crash unexpectedly and requires careful, careful testing.

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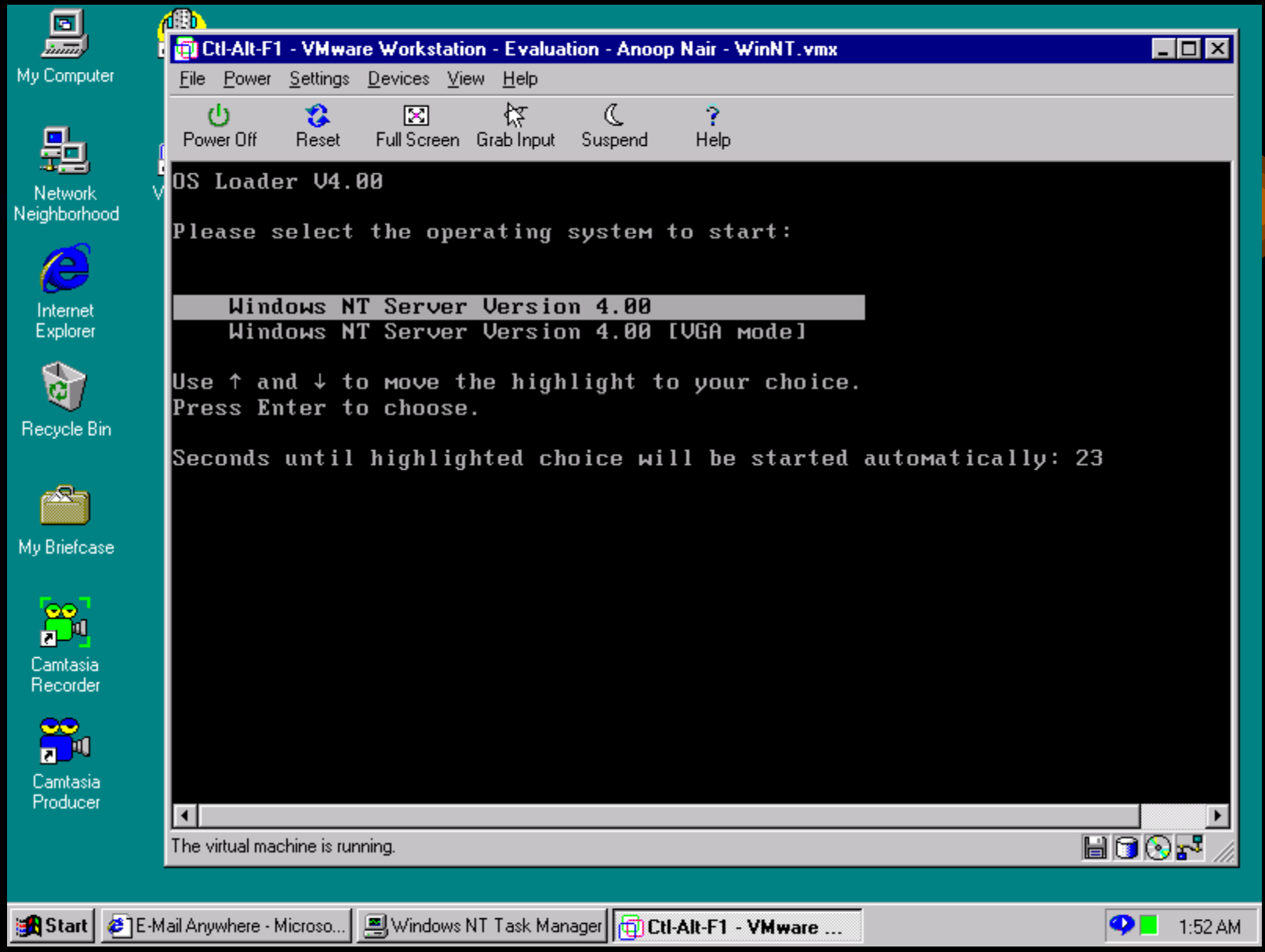

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Conclusions:

- There are ways to reduce the number of NT OAS Servers required for testing OC and TMS.
- Recommend having a separate NT OAS Server for Validation and Production purposes, but combining all other environments can be very efficient.
- Requires thorough understanding of the OC/TMS 3.2 architecture to set-up and maintain.

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