WCDMA RAN W12 Troubleshooting

Exercises

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Exercise 1 Familiarization with Configuration in RNC 3820

OBJECTIVE:

This exercise is performed to sum up the configuration as it exists in the RNC for the Iu-cs and the Iub interfaces. (Iub configuration is almost the same from the RBS side.) Only the ATM based configuration is checked.

The instructor will then make a summary of how the IP based Iub is implemented.

BACKGROUND:

The prerequisite courses explained the configuration.

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RESOURCES:

1. CPI library for RNC 3820 W12 (EN/LZN7340011/2 R1A)
2. CPI library for WCDMA RAN EN/LZN 733 0024 R2A

INSTRUCTION:

1. In the paper provided, use the RNC Element Manager to fill in the configuration for the Iu-cs and Iub interfaces as configured in the RNC from Managed Object perspective.

2. How would this configuration be different if the RNC3820 was used for ATM based Iu-cs and Iub?

3. In the paper provided, also indicate how the Iub over IP would be implemented from a MO perspective.

4. How would Iub over IP implementation be different if RNC 3820 was used instead?

Exercise 2 CPP/RNC System Redundancy Concept

OBJECTIVES:

The aim of these exercises is to understand some of the redundancy concepts in a CPP/RNC node, including Reliable Program Uniter (RPU), Fault Tolerant Core (FTC), Moveable Connection End point (MvCEP).

BACKGROUND:

Knowing the redundancy concepts and limitations allows operators of the nodes to understand problems better while troubleshooting a fault or a certain behavior.

RESOURCES:

1 CPI library for RNC 3820 W12 (EN/LZN7340011/2 R1A)

2 CPI library for RBS 6000 (e.g. RBS 6201 EN/LZN 735 6023 P6A)

3 CPI library for WCDMA RAN (EN/LZN 733 0024 R2A)

INSTRUCTIONS:

Groups may perform these exercises in parallel. The instructions for the exercises are given in the following pages. Although telnet sessions are suggested, note that it is possible to perform CLI commands through the AMOS shell:

EXERCISE 2-1: FAULT TOLERANT CORE (FTC)

1. Telnet to the RNC assigned by the instructor.

2. Which board are you “physically “connected to? (“listenv” or “pdr”)

3. Which board has the Active mount status right now? (“mirror st”) - Might need to log in to another board with the command “lhsh 00xx00”).

4. “reload” the board that has the Active status now.

5. Which board has the Active mount status now?

6. Check for other GPBs in the RNC if the same actions can be repeated.

7. Lock the active board (from Step 5 above). Do you see any changes when “mirror st” is given in slot 5 and slot 24(RNC 3820)?

EXERCISE 2-2: RELIABLE PROGRAM UNITER (RPU)

1 From the Element Manager, look at the alarm list. See if there are any alarms for the RANAP (CS).

2 With the Element Manager, lock the Plug-In-Unit in Slot 8 in the Main Subrack.

3 Does a RANAP (CS) alarm appear in the Alarm List?

4 With the Element Manager, unlock slot 7 (RNC 3820). Note alarms, etc.

5 Now, restart slot 7 (RNC 3820). Does any alarm appear now?

6 Perform the command “sma –all” in the slot 8 and slot 9 in the Main Subrack in the RNC. What do they indicate? Lock plug-in-unit in slot 8 and perform the “sma –all” command again on the slot 8 and slot 9. Any change?

7 Unlock slot 7 (RNC 3820).

8 Perform “sma –all” in slots 8 and 9 immediately after restarting the board in slot 8. Any difference compared to Step 6?

9 Can you find the how the “sma –all” settings would be shown in the Element Manager?

Summarize the over all behavior.

EXERCISE 2-3: MOVEABLE CONNECTION END POINT (MV CEP)

1 In the space below draw how a RBS is connected to the RNC. (Only the physical, ATM and AALx layer are important.)

2 Which RNC Module does this RBS belong to?

3 Who assigns which RNC module a RBS should belong to?

4 Lock the board that is responsible for the RBS's NBAP-Common right now.

5 Check the properties of the AAL5Tp to find out which GPB is responsible for it at this time.

6 Now, unlock the board, and repeat Step 5 again.

Summarize the behaviour.

Exercise 3 AMOS Introduction

OBJECTIVE:

The aim of this exercise is to understand on how to work with the AMOS tool.

BACKGROUND:

AMOS is a text-based Operation and Maintenance client providing access to the Alarm, Configuration, FTP, Performance, Inventory, Log, Notification and OSE-Shell services.

RESOURCES:

CPI Library for OSS-RC 012.0.8 EN/LZN 703 0129 R1H

INSTRUCTIONS:

Follow the instructions in the next page.

EXERCISE 3-1: AMOS INTRODUCTION

Instructions: Answer the following questions in the spaces provided.

1 How do you print the list of available commands in AMOS?

2 Determine how many MO instances are defined in this node.

3 How do you print the user variables?

4 What is the path to the java software used by this moshell installation?

5 What is the value of the setting “corba_class”?

6 How do you print the environment/scripting variables? What is the current AMOS (moshell) version?

7 Print the MOM information: MOM version, CPP (Cello) MOM version, MOM document number and revision.

8 How do you print the syntax information for the command "mom"?

9 Search in the MOM to find the MO classes that have an attribute whose name contains the word "hello".

10 Search in the MOM to find the MO classes that have an attribute whose description contains the expression "peak cell rate".

11 Determine from the MOM the list of MO classes that can be defined underneath the MO class Sctp.

12 Determine from the MOM the number of Aal2PathVccTp MOs it is possible to define in this node.

13 Determine from the MOM the type of the attribute UpgradePackage:state. What are the possible attribute values that this attribute can take?

14 How many ATM Ports are defined in the node used in training?

15 What is the IP address of this node?

16 How many MOs are in state “unlocked disabled”?

17 How many MOs have the administrative state as “locked”?

18 How many MOs are in state disabled under the Transport Network?

19 Which ReliableProgramUniter MO has the attribute “admActiveSlot” set to “subrack=ms,slot=17” and the attribute “replication” set to 3?

20 Set the userlabel of the MO Equipment=1 to be as your userid.

21 How many routes are defined in the IpRoutingTable? What is the address of the default gateway?

22 How many alarms are currently active in the node?

EXERCISE 3-2:

1 How do you print the list of available commands in OSE shell of the current board?

2 In what position is the board that you are currently logged in to?

3 Check the LED status and HW revision of the board in main subrack and slot 7.

4 Download the folder /c/license from the node to the Workstation or PC.

5 Print the list of board groups available in moshell. How many boards are there in the board group “sccpmp”? What are their positions? How many lines are there in the “te logs” of the boards of the “sccpmp” group containing the word “panic”?

6 Which GPB has highest memory usage?
Which GPB has the highest disk usage on /d?

7 What is the largest file in the folder /c/loadmodules_norepl?

8 What is the current SW level?

9 In what position(s) do we find ET boards? What kind of ET boards? What revision?

10 Which board has the highest temperature?

11 In which slots do we find the program CXC1322417/xx? What is the name of this program?

12 What program is running in the SPU processor in slot 19?

13 How many CVs are connected to the upgrade package CXP9012014_Rxxxxx?

14 What is the name of the LM CXC1321316?

15 What is the state of the synchronization ? Which source did the clock(s) select?

16 Verify that the diagrams (Iu and Iub) drawn in Exercise 1 with the AMOS commands.

Exercise 4 Logs in CPP based nodes

OBJECTIVES:

The aim of this exercise is to investigate the purpose and the location of the various types of logs one can find in a CPP based node.

BACKGROUND:

There are many types of logs in a CPP node which might be useful while escalating CSRs for the Ericsson Local Support (ELS) and for analyses for 2nd line and 3rd line supports. When required, these logs might need to be fetched out from the node with ftp. Some common ones worth remembering are listed below:

Alarm Log – older alarms -one per node, can be read in the Element Manager

Event Log – every event is recorded- one per node, can be read in the Element Manager

Trace and Error Log –one for each processor

List error log (=restart log) – for each processor

PMD Log – all abnormal restarts are logged in one central place

Availability Log – one per node. Notes when the node goes down and comes up.

Security Related Logs: *Audit Trail Log* (which records the MO and shell actions performed in the node) and *Security Log* (who has logged in/out info)

System Log – /c/logfiles/systemlog

Trace log for upgrade (also referred to as Trace log)

RESOURCES:

CPI library for RBS 6000 (e.g. RBS 6201 EN/LZN 735 6023 P6A)

CPI for WCDMA RNC 3820 W12 (EN/LZN7340011/2 R1A)

INSTRUCTIONS:

1 Telnet into a CPP node (e.g, RNC).

2 cd /c/systemfiles/cello/cma/su/trace/

- Which log is stored there?

- Read the contents of the log, and make a summary of when this log would be useful.

3 Answer the following questions regarding access into the node: (X-ref: CPI doc: "Security for O&M Node Access" *1551-CXA 1103235 Uen*)

- Who was the last one to access the node? Which file tells this information?

- Which file would tell what action on a Managed Object was last done?

4 Open the Element Manager of an RNC. Check the Alarm Log. (X-ref: CPI document "Element Manager" *29/1553-AXD10503/1 Uen*)

- Is it possible to print the Alarm Log?

- What is the difference in the 'Severity' column between the Alarm List (active) and the Alarm Log?

5 Answer the following questions regarding the Alarm and Event Logs (x-ref: CPI doc "Alarm and Event List" *23/00651-AXD 10503/1 Uen*)

- How many types of Events could have been registered in the Event Log?

- How many alarms are possible in the CPP node that you are logged into?

- Browse through the list of events (and the MO related) to get an idea of when the event log could be useful.

- In the node file system, where are these logs saved?

6 Miscellaneous (x-ref: Troubleshooting Guide *24/1553-10503/1 Uen*)

- How do you read the trace and error (te) log of the Central GPB/CBU?

- How would you read the te log of slot 4 of the main subrack?

- How can you read the te log of all the boards at the same time?

- Note down the last line of the trace and error log. (Only the fields are important, not everything.)

- Type the command ‘te s’ and note down the entries you get. (Check the first line of the printout. If you cannot get to the first line, use the command on a board other than a GPB.)

- Which command would allow you to read the list error log (restart log)?

- Where are the PMD (post mortem dump) files stored in the node?

7 Location of System Log (x-ref: “Fetch System Log” *2/1543-CRX901143/1 Uen*)

- Where are the System Logs located?

- What is the maximum size of each syslog file?

- How many such system log files can be present in the node?

- In the node that you are connected, which is the newest system log file?

- Read the content of one of the logs.

8 Which AMOS command would provide all the information gathered in the exercise so far?

Exercise 5 Using Alarm List and the 'Trace and Error' Log

OBJECTIVE:

The objective is to understand the use of trace and error log.

BACKGROUND:

Trace and Error Log records 'events' as they happen in the processor. Which events to record depends on what the processor has been asked to record.

Every processor has its own trace and error log.

RESOURCES:

CPI library for RBS 6000 (e.g. RBS 6201 EN/LZN 735 6023 P6A)

CPI for WCDMA RNC 3820 W12 (e.g (EN/LZN7340011/2)

INSTRUCTIONS:

1 Check the active alarm list from the AMOS or Element Manager (or OSS-RC's ALV application).

2 Check the alarms generated from the UtranCell. (If possible the instructor will assign one alarm to each group.) Note down the alarm.

3 Here the intension is to get a feel how that information in the alarm is related to the 'trace and error log'. Use the AMOS or EM to find out which RNC module GBP the RBS is currently assigned to. Confirm this by typing the command "cell –cid xxx" in the RANAP/RNSAP GPB.

4 Once the GPB that is responsible for the cell is found, read the trace and error log from that GPB. "lhsh XXYY00 te log read". Is there any indication what the problem is? (Hint: use the "grep ERROR" function if you are using AMOS.)

5 Now the instructor will enable a few traces in the module GPB. These traces were reported in the TE log read in the previous step.

- lhsh XXYY00 te e trace3 trace4 trace5 rnhCellRoC*
- lhsh XXYY00 te e all RnhCellHndlC
- lhsh XXYY00 te log clear
- He/she will lock the cell and unlock it again

6 Check the trace and error log again. Is there more info in the log?

7 The instructor will again enable a few more traces:

- lhsh XXYY00 te default
- lhsh XXYY00 te e all NBAP_ASN
- lhsh XXYY00 te log clear
- He/she will lock the cell and unlock it again

8 Check the trace and error log again. Are there more/different information?

It should be noted that the message in the logs often need decoding with decoders. In such a case, those logs can be appended to the CSR and the second line can find the answer to what the problem might have been.

For this particular case, the instructor will show the decoded messages.

Exercise 6 Case: Cell Enabled, but Channels Disabled

OBJECTIVE:

The aim of this exercise is to read the alarm list, and use the operational instruction (OPI) to solve the problem.

BACKGROUND:

If IubLink, together with the NBAP-C and NBAP-D signaling are enabled/unlocked on both the RNC and the RBS, the cells are enabled. However, it does not necessarily mean that all the radio channels are enabled.

RESOURCES:

CPI library for RBS 6000 (e.g. RBS 6201 EN/LZN 735 6023 P6A)

CPI for WCDMA RNC 3820 W12 (e.g (EN/LZN7340011/2)

CASE:

The RBS has just been "on-site integrated". The OMC then puts the Transport Network and the Radio Network configuration in the respective nodes, and unlocks all the necessary MOs. The on-site integrator is supposed to make a test-call before he heads home. He calls back to inform that it is not possible to do so.

INSTRUCTIONS:

1 Lock/unlock cells. Does it help?

2 Are the signalling channels (NBAPs) ok? How about the Node Synch?

3 Do the radio channels come up in the RBS?

4 Note down any alarms in the RNC and RBS.

5 What does the OPI say regarding how to solve the alarm? Does that help? What does the OPI say what maybe causing the alarm?

6 The instructor will provide some decoded NBAP messages for this exercise. By comparing this decoded message with the decoded message in a normal case (given to you), can you figure out what the problem could be?

7 Instruct the instructor on how to solve the problem.

Conclusion:

Exercise 7 RBS6201 Specific Devices

OBJECTIVE:

The objective of this exercise is to understand how different devices shown in the RBS 6201 Element Manager or AMOS are related to the hardware configuration.

BACKGROUND:

In a RBS 6000 Element Manager or through AMOS, one can see different radio devices. Some of them are enabled and others are disabled. The devices and their operational states are dependent on the hardware configuration based on the Radio Block (RB) concepts.

RESOURCES:

CPI library for RBS 6000 (e.g. RBS 6201 EN/LZN 735 6023 P6A)

INSTRUCTIONS:

1 From the CPI, find out what a 'Radio Block' is.

2 The RBS6201 that you are now connected is configured as a 3x1 RBS, using RU21 and without Tx Diversity. What RB is it represented by?

3 How does the cabling look between a Digital Unit (DU) and the Radio Unit (RU) right now.

4 From the RBS Element Manager or AMOS, find out the operational states of the radio devices:

- TXB: Slot ____ :
  - TXDeviceGroup ____
    - DbccDeviceSet _____
      - DbccDevice=1 ____
      - DbccDevice=2 ____
      - DbccDevice=3 ____
      - DbccDevice=4 ____
      - DbccDevice=5 ____
      - DbccDevice=6 ____
    - DbchDeviceSet ____
  - ____
- TXB: Slot ____ . Same?

- RAXB: Slot ____

  - RAXDeviceGroup=1 _____
    - UbchDeviceSet=1 _____

- Radio Unit (RU): Slot 2
  - DPCL Device Set=1
    - DPCL=1, _____
    - DPCL=2, _____
  - TPA Device Set: ____
    - TPA Device: ____
  - TR Device Set: ____
    - TRDevice=1 ____
    - TRDevice=2 ____
    - TRDevice=3 ____
    - TRDevice=4 ____

Are the other RUs the same? ____

- Filter Unit (FU): Slot 2
    - FU Device Group _____
        - AI Device Set ____
            - AIDevice=1 ____
            - AIDevice=2 ____
    - ____

5 If one wanted to change the configuration of the same RBS to be a 1x2 (using the same hardware units, but cablings are rearranged), which RB would be representative of the configuration?

6 How would the device states look like for the configuration mentioned in Question 5?

7 Collect the logs (e.g. te log) from the RU in slot 2 with the OSE shell and also through the AMOS.

Exercise 8 Node in a “cyclic restart”

OBJECTIVE:

The objective of this exercise is to understand why a Connectivity Packet Platform (CPP) node has gone into a cyclic restart, and how one can get out of such a situation.

BACKGROUND:

When CPP realizes that a ‘cyclic’ restart situation has occurred, then the rollback configuration version (CV) (in the order of priority) is initiated to take over.

Although not a ‘normal’ case, it is good to understand how the restart and rollback procedures work, and, should there be a ‘cyclic’ situation, the way to get out of it.

RESOURCES:

CPI library for RBS 6000 (e.g. RBS 6201 EN/LZN 735 6023 P6A)

CASE:

The CPP node (RBS) is in a cyclic restart!

INSTRUCTION:

Preparation for the case:

1. Make a CV. E.g. Jack1
2. Make a CV again Jack2
3. Put CV Jack1 in the rollback list #1
4. Make Jack1 as the ‘startable’ CV.
5. Make sure, with the Element Manager, that the Jack2 is the ‘last created’ and the ‘executing’ CV, and that Jack1 is in the rollback list #1 and the ‘set startable’ CV.
6. The instructor will make a restart of the node.

7. Check with the EM or AMOS again what the executing, startable, etc CVs are.

8. The instructor will make another restart of the node.

9. Telnet into the node. If it is not possible to telnet, try to get the node and the configuration back without formatting the node!!! Once the node is operational, try to find out why the node went 'cyclic'.

Exercise 9 Iub does not up

OBJECTIVE:

After the end of this exercise, the student will be able to solve an Iub integration problem with the help of OSS-RC tools and Element Managers or AMOS.

BACKGROUND:

The RBS being integrated is linked to the RNC via an intermediate node.

RESOURCE:

CPI for RNC or RBS or RXI

CASE:

A new RBS has just been integrated via an intermediate node. However, the Iub (Nbap) does not get enabled.

The OSS-RC applications (Transport Topology Viewer and Node Status Analyzer) are available, if required.

INSTRUCTION:

Find out the reason why this Iub does not come up. (Since there are other groups also working on the same problem at the same time, do not solve them right away.)

Conclusion:

Exercise 10 RANAP does not Working

OBJECTIVE:

The objective of this exercise is to use the configuration knowledge of the network to solve a RANAP related problem using the Element Manager or AMOS as the tool.

BACKGROUND:

This is a new RNC being integrated. This RNC should have exactly the same network level configuration as the RNC used so far, except for the obvious differences (e.g. AESA, SPC, would be different, of course.)

RESOURCES:

CPI library for RNC 3820 (EN/LZN 734 0009/1)

Instructor (who can provide MSC data and M-MGw info)

CASE:

The RANAP (Iu-cs) does not come up!

INSTRUCTIONS:

1 Note the alarms /OPIs

2 Check hardware status in the RNC

3 Check the physical links

4 Perform ETE loopback tests

5 Compare parameters in the RNC and the MSC and the M-MGw

6 Conclusion:

Exercise 11 Cell does not come up

OBJECTIVES:

The objective of this exercise is to check parameter settings to figure out why a second cell does not come up, and take corrective actions. Element Managers and AMOS of the RBS and RNC are used to troubleshoot the problem.

BACKGROUND:

This is a new RBS being integrated.

RESOURCES:

CPI library for RBS 6000 (e.g. RBS 6201 EN/LZN 735 6023 P6A)

CPI for WCDMA RNC 3820 W12 (EN/LZN7340011/2 R1A)

Case: One of the cells in the RBS does not come up.

INSTRUCTIONS:

1. Check the alarms in the RBS. What do the OPI suggest?

2. Check the alarms in the RNC. What do the OPIs suggest?

3. Check for parameter differences between Cell1 and Cell2 as defined in the RNC and the RBS. What tool did you use?

4. Solve the problem.

Exercise 12 Iub does not come up

OBJECTIVE:

The aim of this exercise is to find out why Iub does not come up after a restart is performed in the RBS.

BACKGROUND:

Configuration parameters on the Iub are important to know. Searching the correct logs is also important during the troubleshooting process.

RESOURCES:

CPI library for RBS 6000 (e.g. RBS 6201 EN/LZN 735 6023 P6A)

CPI for WCDMA RNC 3820 W12 (EN/LZN7340011/2 R1A)

CASE:

An RBS has just been integrated and was verified to be working. After the restart of the RBS, it is not possible to make a call.

INSTRUCTIONS:

Preparation for the case:

1. Make sure that the Iub link is operational. Also make sure that the RBS can carry a call.
2. Using AMOS, create an ATM Traffic Descriptor with the name Ex13_Your Name for UBR profile (Serv Cat= UBR, QoSClass=4)
3. Now make a CV in the RBS with the name Ex13a_GrpName. Use Element Manager or the AMOS for this. Set this CV to be ‘startable’.
4. The instructor will make a cold restart of the RBS.

Problem:

5. After the restart, it is not possible to make any call from the RBS. Investigate the reason what the problem is.

Investigation:

6. Are there any alarms in the RBS? Any alarms in the RNC?

7. Investigate the reason for such alarms.

8. Solve the problem.

9. Now find out (= note down) why the alarms came up, keeping in mind that the RBS was working fine before its restart!

Exercise 13 Restore a CV

OBJECTIVE:

The aim of this exercise is to restore a Configuration Version that has been saved outside of the CPP node.

BACKGROUND:

If for some reason the current executing configuration version (CV) in the CPP node causes a lot of problems, or gets corrupted for some reason, the fast way to restore the configuration in the node is to restart with a CV that is known to work fine. However, if the CV is not in the node any longer, but saved outside in a FTP server, then a 'Restore' procedure needs to be carried out. Software Management Organizer (SMO) could be a tool to perform the procedure.

RESOURCES:

CPI library for RBS 6000 (e.g. RBS 6201 EN/LZN 735 6023 P6A)

CPI library for OSS-RC 012.0.8 EN/LZN 703 0129 R1H

CASE:

An RBS has been known to have traffic problems with the configuration that is active now. A CV that was transferred to the FTP server but deleted from the RBS should make the traffic stable.

INSTRUCTIONS:

Preparation for the case:

1. Start the SMO in the OSS-RC and choose the RBS (from the Network tab.)
2. With the right click on the RBS, create a CV (e.g. CV1) and upload the CV to a FTP server. Is the same procedure possible with the AMOS?
3. Log into the ftp server to verify that the CV has been uploaded.
4. With AMOS, create one more CV (e.g. CV2) in the RBS.

5. Delete the first CV (e.g. CV1) that was created from the RBS.

Case:

6. Restore the RBS to CV1. Use the SMO. Right-click on the RBS, and choose the option Download and Restore. In that process, perform a verification procedure also.

7. Which log in the RBS would have information about events associated with this procedure? Read that log.

8. There will be a restart of the RBS. Once the RBS is accessible, note down the name of the CV that is active now.

Exercise 14 Not Possible to Make call

OBJECTIVE:

The aim of this exercise is to make use of different information (from alarms, UETR, trace and error output) in solving a problem. In the process, monitor program also needs to be set-up.

BACKGROUND:

While attempting to solve a fault, it might be required to analyze data from a number of sources, including statistics data, data from performance monitoring, trace and error logs, TEMS recordings and alarms.

RESOURCES:

CPI library for RBS 6000 (e.g. RBS 6201 EN/LZN 735 6023 P6A)

CPI for WCDMA RNC 3820 W12 (EN/LZN7340011/2)

CASE:

A customer calls and says that it is not possible to make a call from his home when camped on WCDMA. This is an 'isolated' site- other people hardly use the cell/RBS.

INSTRUCTIONS:

1 Find out which is the cell that has a problem.

2 Make a MO-speech call. Does it work? (Yes)

3 Make a MT-speech call. Does it work? (Yes)

4 Make a MO-video call. Does it work? (No)

5 Make a MT-video call. Does it work? (No)

6 Verify with the customer that it was the video call that he/she had a problem with. If the customer says it is for all kinds of calls, then his/her telephone might be an issue.

7 Check if the behavior is the same in other cells belonging to the same RBS. (Yes)

8 Check if the UE behaves the same when camped to other cells belonging to other RBSs.

Conclusion so far:

9 What kind of RBS is this?

10 From the OSS-RC, make sure that the primary and secondary stats are active for both the RNC and the RBS. How would you find this from the AMOS?

11 From the OSS-RC, initiate a UETR for a test mobile's IMSI. (The IMSI can be obtained from the MSC/HLR. Instructor to give out in this case.).

12 From the OSS-RC, initiate a GPEH for the cell in question.

13 Note the time/clock in RNC, RBS and the OSS-RC. 'readclock' in the RNC and the RBS with the CLI.

14 Find out which RNC module the RBS in question belongs to, and the controlling GPB, and the related SPBs. (Check with the EM or AMOS. Alternately, use the CLI commands: 'lhsh 001700 cell -c *cellId*'==> This will give the RncModuleResourceId (but not the same as 'normal numbering' of the module. Could be good to note it down anyway.)

15 Go to the site and make a MO-speech call and a MO-video call.

16 Check the log in the Module MPs and the SPBs. Anything unusual? Also check the log in the ETB that the RBS is physically linked to. 'lhsh XXYY00 te log read'. How would the commands look like if AMOS is used?

17 Wait for the ROP/Performance file to be extracted to the OSS-RC. Check the performance figures. (The stats are given out to you by the instructor.) Consult the document “Flowchart for counters”, and note down which counters are useful to check.

MO: UtranCell counter: pm XXXXXXXXXX

18 Do the counters verify the result observed in the field?

Conclusion so far: The RRC connection setup goes fine, but there seems to be a problem after that!!!

19 Check the UETR result for the IMSI. Check when the problem occurs. What is indicated? (The UETR output is given out to you by the instructor.)

20 Is it possible to solve the problem based on the information collected so far?

21 If it was not possible to solve the problem, write a CSR to Ericsson describing this behaviour, and your findings so far. Make sure to include the PM files, general te logs from all the boards, etc.

22 The following steps are performed by Ericsson:

i) Check experiences from other markets if similar behaviour has been reported.

ii) Verify all the tests that were performed before and if possible come up with a solution right away. If not, the ELS would escalate it to 2nd Line support, etc before a solution is found.

iii) For this particular example, if Ericsson could not come up with a solution right away, they could put on 'traces' in the system. Note that it is extremely important that only Ericsson performs these steps. Enabling of traces cause processor loads to increase, and might cause other unwanted effects in a live situation.

iv) First stop the UETR (and CTR) in the OSS-RC. (Since these were already collected twice before.)

v) Clear all the te log contents. 'te log clear'

vi) Put a trace for the IMSI locally from the RNC. 'lhsh xxyy00 ueidtrace –ue imsi *imsi*'. This will minimize the number of IMSIs in the output.

vii) Put the RRC_ASN, NBAP_ASN and RANAP_ASN traces on the module GPB. 'lhsh 00xx00 te e all XXX'.

viii) Enabling a trace will result the trace outputs to be written in the te log (can be checked with 'te log read'). If there are a number of boards involved, or if the trace output should be captured 'realtime', a 'monitor program' is used to capture them in one single place continuously.

CLI> tm –tcp –win 1 =>gives "handle#" and 'port#'

CLI> tm –status

CLI> tm –attach "handle#" xxyy00

DOS/PC> telnet IPAddress "port#"

Alternatively, to capture the trace from various MPs at the same time, the outputs could be directed to a file. 'te disk start' can be given on the MPs involved.

ix) The Ericsson Local Support (ELS) sends the output of the trace to 2nd Line support who then decode the output to get the relevant cause of the problem.

Conclusion so far: The problem has been identified to be related to _____ .

23 Try to solve it. What did you do?