Minutes of Meeting

Subject: MoM EGSE Commonality Meeting #3
Participants: Otto Bauer (OHB—MPE), Luc Dubbeldam (LD—SRON), Helmut Feuchtgruber (HF—MPE), Astrid Heske (AH—ESTEC), Rik Huygen (RH—KUL), Ken King (KK—RAL), Peter Roelfsema (PR—SRON)
Location: ESTEC
Date: 14 March 2000

Introduction

Agenda is accepted.

Action Items of last meeting

EGSE-25/1/00-01	done	
EGSE-25/1/00-02	done	
EGSE-25/1/00-03	done	
EGSE-25/1/00-04	done	
EGSE-25/1/00-05	obsolete	docs are not available at MPE in electronic form
EGSE-25/1/00-06	done	
EGSE-25/1/00-07	done	
EGSE-25/1/00-08	done	
EGSE-25/1/00-09	open	further discussion is needed on this item NOTE: There is still the question how to patch the OBS since nobody seems to know how virtuoso handles updates/patches.
EGSE-25/1/00-10	open	
EGSE-25/1/00-11	done	
EGSE-25/1/00-12	open	

NOTE: OHB: We only have to provide IFSI with one station, that's enough to test three systems staggered. Renato is willing to use SCOS-2000 for testing which is good for us since then at least someone gets experience and part of the EGSE setup is already tested during subsystem level tests.

Review Common EGSE document – Ken King

Going through the DRAFT 2 of the Common EGSE Concepts document (FIRST-SPI-NPT-000097). Some (small) changes were proposed and will be implemented by KK.

page 2   first paragraph of section 2; change expected to intended; Add PDS to figure 2-1.
page 3   OBS should be thought out more. Cfr. AI on JD (EGSE#3-001). What about activation/de-activation sequences... (Question by HF) At this point it is supposed to go this way that the MOC accepts 'a block, an image' and they will figure out how to do the patch, e.g. by comparing with the current on-board image and uplinking the differences. The instruments just have to provide the image and the command to uplink. The text in this note is not changed.
pages 4-6   PACS presented their view on the EGSE based on the diagrams from this note by KK see appendix 02). It is clear that elaboration is needed on the diagrams and we should maybe come up with a real functional diagram and data flow diagram and

come up with a design. KK clarified that the intention of this note was to write up our current understanding of the ESGE and to come to a common understanding.

page 8   LD asked if command translation and TC packet generation should not be in test control instead of in uplink. Test control is e.g. displaying raw telemetry packets.

page 9   section 4.7.1 has two topics which are the same...delete one

SCOS-2000

HIFI has a license for version 1.0. HIFI will install SCOS-2000 on a SUN ULTRA 10. The motivation to select an ULTRA 10 is that these machines are available for Dfl 10.000, where the price of an ULTRA 60 is above Dfl 40.000. SCOS is not yet operational as no agreement has been reached about the COTS licenses. ESOC claims that a ULTRA 60 is needed for the number of slots to add monitors to the system. This could probably also be handled by using the X Window protocol to display on screens connected to other workstations. Processing power between ULTRA 10 and ULTRA 60 is only about 10%. The installation guide of SCOS-2000 mentions Solaris 2.6, not the model, i.e. ULTRA 10 or ULTRA 60. HIFI is asked to do further tests on SCOS-2000 with respect to the above questions.

Going through the comments on document of Pierre Estaria

Number of machines needed by the instruments: KK current estimate is 4 machines (2 for ILT, 1 for DPU, 1 for Warm electronics), HIFI 3 machines, PACS 3 machines → about 10 installations.

EGSE elements available to FIRST/Planck PI's

A note on bits of software that people have used in the past and that are available (for free?) for the PI teams. The problem is that we don't see the need for this stuff since they interface with SCOS 2 but most of this functionality should be available in SCOS-2000 already.

NOTE: it's not clear at this point to what SCOS-2000 can interface and how. Therefore we don't know what we need and if we need some extra tools to interface SCOS-2000 to some other system or network.

We have put together a list of questions that we have:

- ❑ most of the interfaces described are for SCOS2, what about SCOS-2000? Which part is implemented into SCOS-2000, are the products necessary?
- ❑ we need more information on each element described in the note, e.g. URDs or user manuals
- ❑ the database interface is the first thing that might be interesting for us, but who is providing the editor for FIRST?

RTA Delta URD

The question for this document is: "Do we need all these requirements?" Since this group has to make a SCOS-2000 Delta URD out of this RTA Delta URD, OHB wants to go through all requirements and accept or reject them.

We had a discussion about having the MIB in FINDAS or only the information which is in the MIB and generate the MIB from this information. For the MOC the MIB file is the master copy and the FINDAS objects should be generated from this file. This is also the point of view of PR (HIFI).

RTA (SCOS-2000) should be able to read/write and update objects in FINDAS, examples are log files and telemetry.

OHB collected our comments and will ask Erich to implement them into the document.

Test Control URD – Helmut Feuchtgruber

The comments send in by LD and KK were discussed. HF will update the Test Control URD.

TEI and Proposed architecture – Peter Roelfsema (Appendix 01)

PR explains the viewgraphs from AdJ (Albrecht de Jonge). Some testing and comparison for a prototype real-time system has been done by Albrecht.

URD for interface unit – Luc Dubbeldam

Req 2: Add PCS and CDMS interface...
New req.: Merge TM packets from TEI boxes
New req.: performance requirements?
[ERT = Earth Receive Time]

QLA/IA interface URD – Ken King

KK will update the requirements and put them also into the overall Common EGSE URD.

FINDAS URD for ILT

PACS and SPIRE will provide this input by end of next week, HIFI already did the exercise and will also send their input.

CUS

RH explains briefly what the status is of the work package on the CUS for PACS. A question about activation/de-activation sequences going into CUS (or not) leaded to quite some discussion. The conclusion is that the sequences will/could be handled by the CUS and will/should not be threaded as a special case because that will put specific requirements on the CUS.

Work packages

WP1   TM/TC Interface + uplink + TEI interface
WP2   SCOS-2000 and Test control
WP3   CUS
WP4   FINDAS Clients

	WP1	**WP2**	**WP3**	**WP4**
HIFI	*Albrecht de Jonge*	Luc Dubbeldam	Peter Roelfsema	[Peter Roelfsema]
PACS	Lothar Barl	*Erich Wiezorrek*	*Helmut Feuchtgruber*	Bart Vandenbussche and ErW/EkW
SPIRE	Dave Parker	Rodney Warren-Smith	Tania Lim	Sunil Sidher and *Rodney Warren-Smith*

(Names in red, *italic* are in charge of the teams.)

Timescale for this first activity, i.e. definition of workpackages (URD, implementation, testing): expectation is that the leaders will be in touch with each other to organise the work to be done.

Scope of the EGSE Working Group

We agreed to continue on the road to go, i.e. concepts→design→detailed design→ implementation→testing until we feel no constructive work comes out of this group anymore. With this common understanding that we finish the agreed work packages.

Next meeting

EGSE#4: 22 May at ESTEC
FIRST/Planck Payload Review Meeting: 23 May at ESTEC
EGSE#5: 28 June at ESTEC

Action Items

Number	Due Date	Action on	Description
EGSE#3-000	24/03/2000	ALL	send viewgraphs or inputs to this meeting to RH
EGSE#3-001	10/04/2000	JD	provide information on memory upload/patch possibilities of SCOS-2000
EGSE#3-002	10/04/2000	JD	provide a note on APIDs
EGSE#3-003	31/03/2000	OHB	send questions on EGSE elements note to PE
EGSE#3-004	31/03/2000	PE	put SCOS-2000 evaluation report into DMS
EGSE#3-005	31/03/2000	ErW	clarify req RTA-4.1.1-11 and RTA-4.2.0-05 and RTA 4.3.0-04 and then update this Delta URD
EGSE#3-006	31/03/2000	HF	update the Test Control URD
EGSE#3-007	10/04/2000	AdJ	evaluate Windows 2000 for use as TEI and compare with Linux and Windows NT
EGSE#3-008	10/04/2000	KK	merge all existing individual URDs into one EGSE System URD
EGSE#3-009	31/03/2000	PRR	find a simple way to convert the LaTeX RTA URD into a Word document
EGSE#3-010	31/03/2000	HF, AdJ, ErW, LD, KK	update individual URDs and send them in Word format to KK
EGSE#3-011	10/04/2000	KK, RH	give firm dates for input on FINDAS URD for ILT
EGSE#3-012	31/03/2000	PRR	send around input from AdJ on FINDAS URD for ILT
EGSE#3-013	23/03/2000	RH	send around draft version of EGSE design exercise for PACS ICC (DONE, appended to these minutes)
EGSE#3-014	16/03/2000	PRR	ask FGSSE to distribute their documents to all project offices (DONE at FGSSE#4)
EGSE#3-015	31/03/2000	ICCs	comment on names assigned to WPs and on the proposed timeline

Appendix 01:   TEI and Proposed Architecture

Peter Roelfsema (for Albrecht de Jonge)

SRON

TEI architecture

Requirement summary
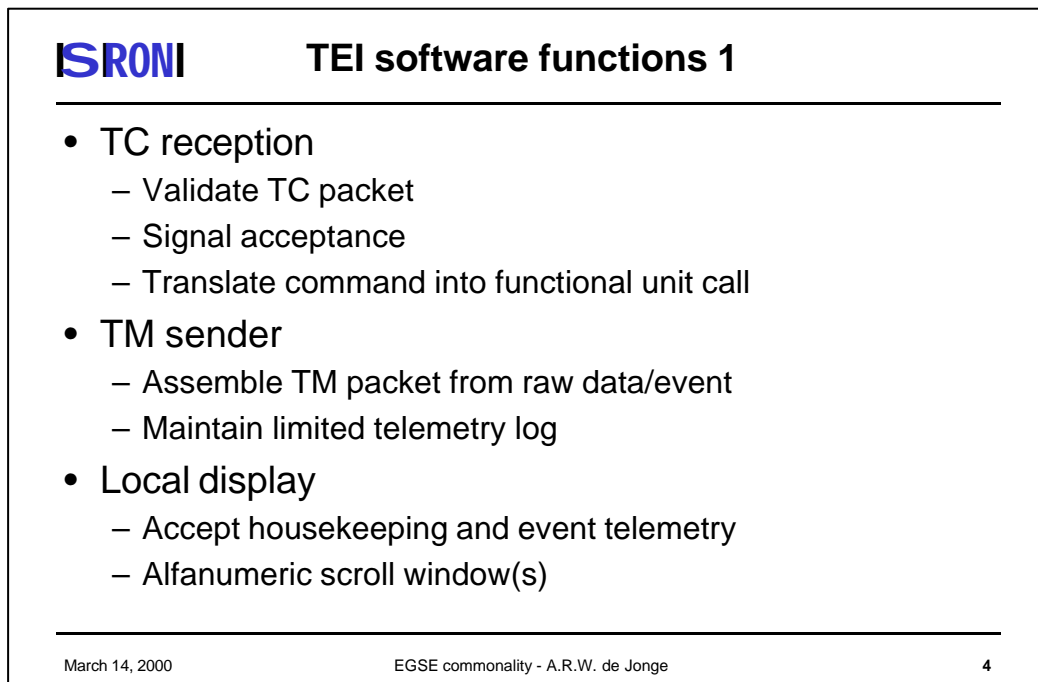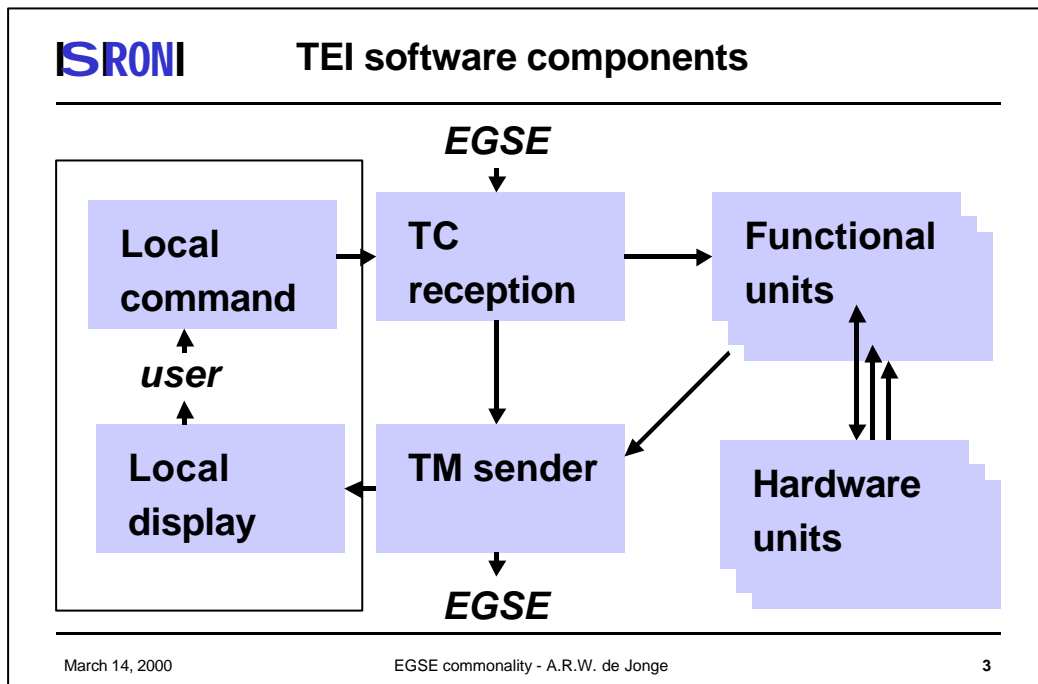HIFI proposed architecture
Use of ESA delivered components

SRON   **TEI requirement summary**

- Readout environment and test equipment
- Control test equipment and environment
- Support standalone operation with control/display for development/checkout
- Remote with EGSE, using standard TM/TC
- Suitable for multiple distributed embedded units
- Support real-time operations

SRON **TEI software components**

EGSE

| Local command | TC reception | Functional units |

user

| Local display | TM sender | Hardware units |

EGSE

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SRON **TEI software functions 1**

- TC reception
  - Validate TC packet
  - Signal acceptance
  - Translate command into functional unit call
- TM sender
  - Assemble TM packet from raw data/event
  - Maintain limited telemetry log
- Local display
  - Accept housekeeping and event telemetry
  - Alfanumeric scroll window(s)

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SRON **TEI software functions 2**

- Local display
  - Accept housekeeping and event telemetry
  - Alfanumeric scroll window(s)
  - Replay TM log
- Local command
  - Command line interface: cmd [parameter …]
  - One command for each function
  - Generates standard TC (fixed type of packet only)

SRON **TEI software functions 3**

- Functional unit
  - One per functional unit of test equipment
  - Expand high level commands
  - Generate timing for real-time sequences
  - Multiple functional units possible per TEI
- Hardware units
  - One per connection to a piece of test equipment
  - Translate functions to specific protocol
  - Implement any real-time functions

ISRON   **TEI prototype**

- Started with LINUX base prototype
  - LINUX with real time extension installed (~2hr job)
  - LINUX licensing is easy... all for free
  - equipment hardware drivers not always available for LINUX
    -> needs implementation of (limited function) specific driver
- Preference for LINUX over NT/Windows
  - NT/Windows has difficulties with command line scripting
  - NT/Windows has no 'clean' real time kernel
  - NT/Windows needs large footprint system

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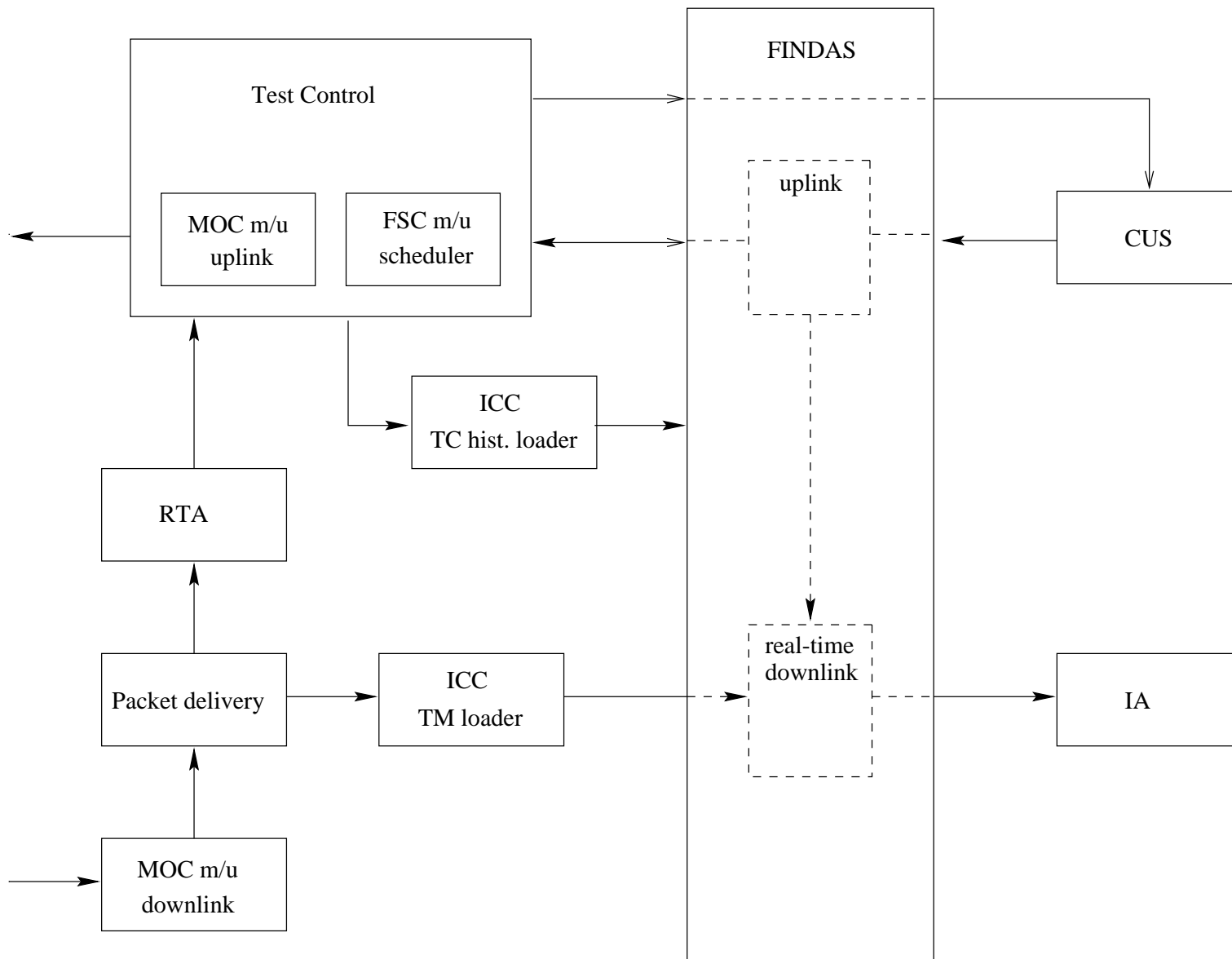**ISRON**   **Final points**

- Who can function as sparring partner from PACS and SPIRE?

- ESA proposed contributions seem not useful
  - not compatible with current EGSE concept (e.g. TM/TC packets for communication)
  - overkill in functionality (e.g. router)
  - quality of documentation?

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Appendix 02:   DRAFT EGSE Design

Rik Huygen (for PACS)

EGSE setup for ILT (data flow)

"EGSE" setup for operations (data flow)

likely to be handled by SCOS 2000

MOC task

FSC task

delta T
TC sequences

FINDAS

PCS

Export PCS

uplink

MOC
uplink

FSC
scheduler

CUS

DDS

FSC
TC hist. loader

RTA
ICC@MOC

ICC@MOC
TM loader

real-time
downlink

automatic
switch

Packet delivery

IA

DDS

FINDAS
interface

RTA
ICC@ICC

MOC
downlink

FSC
TM loader

cons.
downlink