CONSEIL DE L'ATLANTIQUE NORD
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INFRASTRUCTURE COMMITTEE

REPORT BY THE WORKING GROUP OF NATIONAL COMMUNICATIONS EXPERTS ON SHAPE SLICE XVI PROJECT 254H AND TROL CRYPTOGRAPHIC PROGRAMME

Note by the Secretary of the Working Group

On 31st March-2nd April, 1965, as instructed by the Infrastructure Committee (AC/4-DS/494, Item II (14) and AC/4-DS/493, Item VII), the Working Group studied SHAPE's Slice XVI Project 254H and the TROL cryptographic programme. The Working Group's report is attached at Annex hereto.

2. The meeting was attended by the following: Mr. H.F. Hubbard (International Staff, Chairman), Mr. H.E. Schack-Andersen (Denmark), Lt.Col. R. Juvigny (France), Col. Decker and Col. J. Krause (Germany), Lt.Col. B. Castelli (Italy), Lt.Col. F. Olsvik (Norway), Col. K. Karamanoglu (Turkey), Wg.Cdr.(retd.) H.H. Laurie (United Kingdom), Mr. L.W. Doubleday and Mr. S.C. McCormick (United States), Col. L.J.D. Rouge (AFCENT), Lt.Col. W. Wolf and Maj. N. Goodman (SHAPE), and Mr. J.D. McBain (International Staff, Secretary).

(Signed) J.D. McBAIN

OTAN/NATO,
Paris, XVIe.

I. SHAPE SLICE XVI PROJECT 254H

Document: SHAPE 6100/21-5-32/65 of 17.2.65 INFRA/SEC/65/45
Reference: AC/4-DS/494, Item II(14)

The WORKING GROUP:

(1) noted the assurance by SHAPE that its Slice XVI proposal in INFRASEC/65/45 was a self-sufficient project;

(2) noted that the Italian and Norwegian Experts, after study of INFRASEC/65/45, could recommend the inclusion in Slice XVI of planning funds only for the development of an overall ACE Area Grid System;

(3) noted in regard to the analysis of the project shown in Annex A to INFRASEC/65/45 that the positions of the other Experts could be summarised as follows:

A. Central loop with connecting tails (cost estimate £5,715,000) - Recommended by the Danish, French, German, Netherlands, United Kingdom and United States Experts for retention in Slice XVI, since it constituted a direct replacement for the AFCENT microwave system. The German Expert's recommendation was subject to the condition that SHAPE re-examine the number of troposcatter repeater stations with a view to eliminating two, prior to the type "B" estimate being received.

B. Mobile troposcatter link (cost estimate £325,000) Recommended by the French, German and United Kingdom Experts on the understanding that the source of funding (Infrastructure or Military Budget Committee) would be decided by the Committees concerned. The Danish Expert would reconsider his position on this element of the project. The Netherlands Expert considered this item was appropriate for MBC funding. The United States Expert considered that this item met a new requirement and had been proposed for funding in Slice XVI for purely financial reasons.

C. Secondary switching centre (cost estimate £390,000) The Danish, French, German, United Kingdom and United States Experts each viewed this element of the project in the same way as they had done "B" above. The Netherlands Expert could not support provision of TARE under an AFCENT microwave replacement project.

D. Systems engineering (cost estimate £500,000) Recommended for retention in Slice XVI by the Danish, French, German, Netherlands, United Kingdom and United States Experts on the understanding, as regards the Netherlands Expert that Item D(9) would be carried out by the Ad Hoc Group of Experts to study the Technical Features of War Headquarters and on the understanding as

regards the United States Expert, that the cost estimate for this element, which he considered excessive, would be reduced.

(4) noted that the recommendations in (3) above were subject to the following condition:

> "No construction funds are to be released until the Committee has received assurances that implementation of the project will not involve any duplication of expenditure or waste of equipment should an Area Grid Plan be adopted by NATO".

(5) noted that in addition to (3) above, the Danish, French, German, Netherlands, United Kingdom and United States Experts could also support the inclusion in Slice XVI of £300,000 planning funds for the development of an overall ACE Area Grid System.

(6) recommended that the Working Group be instructed to consider type "B" estimates for the implementation of the project before submission to the Infrastructure Payments and Progress Committee.

(7) noted that some Experts had been able to recommend retention in Slice XVI of elements of SHAPE's proposal on the understanding that these elements formed a replacement of the AFCENT microwave system and that their acceptance of these elements would not prejudice their position if, in Slice XVII, it was proposed to extend the system on the lines of SHAPE's short-term communications improvement plan for Central Europe.

(8) noted that SHAPE estimated that completion of the works recommended in (3) above would take 3 to 3½ years from the time of approval of the Slice Programme.

II. TROL CRYPTOGRAPHIC EQUIPMENT PROCUREMENT PROGRAMME

Documents: AC/4-D/1764
SHAPE 6550.1/23-37 of 28.12.64

Reference: AC/4-DS/493, Item VII

The WORKING GROUP:

(1) noted the statement by the Netherlands Expert (see Annex hereto).

(2) agreed in response to paragraph 20(a) of AC/4-D/1764 that not all telegraph circuits needed to be equipped with TROL machines since many circuits existed to give alternative means of routing; in the case of failure of the primary routing the same terminal equipment (and thus the same TROL machines) would then serve a standby or reserve circuit; furthermore, the number

of machines should be related to all the traffic to be handled and not simply the number of circuits held.

(3) agreed that it was not possible to advise on the number of machines that might be required until SHAPE had prepared a further list of circuits to be equipped in replacement of SHAPE 6550.1/23-37 showing the requirements for each Command separately (and, for national terminals, each nation separately), the list to distinguish between simplex and duplex circuits and to indicate the different types of circuit involved (long lines, reserved, forward scatter, military radio relay, HF radio) and noted that SHAPE would produce a revised list as a matter of urgency to facilitate further discussion.

(4) noted that despite the technical questions still to be solved and without prejudice to any commitment under future programmes, the Danish, French, German, Italian, Norwegian, Turkish, United Kingdom and United States Experts could recommend the retention in Slice XVI of a project for the procurement of TROL equipment as proposed by SHAPE, since the minimum number of machines that could be recommended would certainly cost more than this sum and on the understanding that before funds for procurement were released (type "B" estimate), the Working Group would have been satisfied as to the numbers of equipments then to be procured and the circuits that would be equipped. The number of machines to be purchased would be that number which could be bought for £3.7 million (the SHAPE recommended inclusion for the Slice XVI).

NETHERLANDS POSITION CONTROL

1. The SHAPE list 6550.1/23-37 dated 28th December, 1964, must be changed according to the wishes expressed during the first meeting when the above list was handed out by SHAPE.

2. The list is being studied by the Netherlands Authorities together with paper AC/4-D/1764.

3. The statement on page 13 of the SHAPE letter (point 6) is not quite correct; there is no total encryption possible with the proposed equipment with the TAREs in the ACE Grid System, only so-called point-to-point encryption.

4. This is also found in document AC/4-D/1764, Annex, page 7, paragraph 5, where it is said: "Neither equipment will operate with TARE except on a fully attended basis" but this is also the case with the proposed ELCOTREL. The tests mentioned in AFSOUTH were done with plain text, not encrypted one.

5. The Netherlands Authorities are of the opinion that the SHAPE list (6550.1/23-37 dated 28th December, 1964) should be re-arranged:

(a) split up in priorities in the use of TROLs for the total circuits;

(b) what kind of existing equipments are already on the circuits as on-line equipment:

(1) unmodified ETCRRM,
(2) modified ETCRRM,
(3) ECOLEX IV,
(4) ALVIS,
(5) Siemens as in Denmark, Belgium and Germany,
(6) other types of on-line equipment,
(7) hired equipment as in 4ATAF/CENTAG paid out of MBC funds,
(8) SX or DX termination (NATO and national),
(9) by Command, the total telegraph circuits routed in a permanent, reserved, forward scatter, radio relay, HF-RATT systems.

6. Priorities must be stated for the purchasing of the equipment, e.g. which circuits must have the first priority with the TROL equipment when it is decided by NATO Council.

7. The M.N.C.s (SHAPE, CINCHAN, SACLANT) will make use of the existing on-line machines supplemented to TROL, e.g. 420 EC IV to EC V.

SHAPE knows the exact prices to "rebuild" the EC IV to a TROL EC V, built in a 19" rack (see letter of the manufacturer of 16th October, 1964).

8. The rest of the needed TROL equipments will be purchased when the needed technical clarifications on the use of TROL equipment through the ACE Grid System, e.g. selective switching etc., (see STC document TM-124) are solved.

9. The NATO Council must as soon as possible decide whether the national TROL terminations will also be common funded.

10. The Netherlands Military Authorities cannot agree with the fact that the price factor was not included in the evaluation of the TROL equipment.

11. Unless all problems precluding the use of the funds in Slice XVI and the programming of the further instalments of the project in later Slices have been resolved before the end of 1965, there is no need to keep the requested funds in Slice XVI.