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Company Confidential

Oct 26, '60

Memo for File

Subject: What should FSD's Strategy be ~~be~~ regarding
STRETCH and Super-STRETCH? -- First Pass --

I. Background.

The STRETCH program has ~~experienced~~ suffered a great many ups and downs ~~the course of~~ since it was started in 1955. The Corporation has reorganized several times since then and the STRETCH program has not always enjoyed uniform support. The program grew out of a competitive situation at the AEC's Swinmore Lab, in which they invited bids on a 2 Mc computer. ~~The~~ The contract was won by Sperry-Rand and ~~the~~ eventually produced the LARC. I.B.M. ~~then~~ later obtained a contract from AEC Los Alamos for a 10 Mc computer. The contract ~~for~~ for a fixed fee of \$4.3 million was signed in Dec 1956, at that time I.B.M. realized that the program would cost considerably more than this -- but no one guessed how much more, -- ~~at~~ at the same time negotiations were underway with Bu Ships for another contract for a ^{special purpose} STRETCH-like machine later called HARVEST. This program got underway during 1957 and proceeded in parallel with STRETCH using the same circuits & ^{many of the} same planners.

Unfortunately it is hard to imagine two requirements more different than those of ^{AEC} Los Alamos and the HARVEST customer. The repeated attempts to pull these ~~requirements~~ ^{requirements} together into one logical design caused ~~for my opinion,~~ ~~irreparable~~ damage to the STRETCH was an almost impossible task, ~~and~~ full of many compromises.

~~one result~~
~~Another~~ ~~of~~ This "shotgun marriage" has been
 That each of the customers ^{now} feels that he has been ~~given~~
~~placed~~ ~~in~~ ~~a~~ ~~second~~ ~~class~~ ~~customer~~ put in second place to
 the ^{desires of the} other. Incidentally, the ~~the~~ STRETCH system, without Harvest, runs about
 to 206,000 ~~transistors~~.
 Because it was breaking trail in ~~the~~ technology ~~and~~
 and logical design and because it was costing the Corporation
 so much ^{IBM money}, it was easy to criticize the STRETCH program at all
 levels -- and it was. The fact that the 7090 sprang almost
 full grown from ~~the~~ STRETCH ~~and~~ components ~~and~~ has
 been ^{widely} overlooked.

Last winter it was realized that STRETCH would not meet
 its delivery dates of ~~the~~ June 1, 1960 for STRETCH and Sept 15, '60
 for HARVEST. a ~~crisis~~ crisis developed resulting in ~~the~~ ~~using~~ ~~the~~
~~amount of~~ ^{personnel} ~~and~~ ~~money~~ ~~being~~ ~~put~~ ~~into~~ ~~the~~ ~~program~~, increasing
 the rate of expenditure and amount of overtime. at the present
 time about as many people as can be put on the project are working
 on it. In spite of this, the ^{STRETCH} program ~~is~~ ^{kept} slipping ^{in time} and
~~is~~ ~~not~~ ~~meeting~~ ~~its~~ ~~performance~~.

II. Present Status of STRETCH

Despite these ~~and~~ difficulties within the ~~the~~ Company,
 STRETCH has enjoyed a tremendous popularity in the outside world,
 It is considered the ~~the~~ ~~unrivaled~~ unrivaled master of the
 computing field. ~~and~~ In spite of a very high price placed upon
 it by DSP, two additional systems have been sold and
 several more are in final negotiations. There is no question
 but that the IBM reputation is a large factor in this acceptance,

The present delivery plans are ~~still~~ still uncertain. The AEC Los Alamos machine could have been delivered about Nov 1, 1960 without ~~the~~ disk file. Los Alamos refused to accept it until the File is installed and their acceptance tests have been run. ^(-- estimated to be about 1 Feb 1961.) The Harvest ~~is~~ is in more uncertain status schedulewise. A new date is to be furnished the customer by DSD on Nov 15, 1960. ~~the~~ ~~the~~ ~~the~~

~~III. Present plans for STRETCH~~
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~~The next two STRETCH systems are~~ ^{after the two models} Subsequent STRETCH systems are to be built at the Kington plant. The first two are now ~~being~~ ~~built~~ under construction. Approximately 100 Kington personnel have helped with STRETCH at one time or another & are now working on it there. ^{About ten such systems are envisioned.} ~~It should be stressed, however, that STRETCH is an all DSD program at the moment.~~

Present DSD plans are to disband ^(complete) the STRETCH group completely sometime early next year. The personnel will be reassigned to other projects in Paychekpie. A number of ~~men~~ men have already been ~~assigned~~ transferred ~~there~~ ~~to~~ ~~be~~ ~~helped~~ ~~for~~ -- including several key ~~the~~ planners and junior managers.

There seems to be some difference of opinion as to what the future of STRETCH will be. One group in DSD is planning to institute an engineering redesign of STRETCH using STAM-PAC circuits. ~~the~~ ~~the~~ ~~the~~ The redesign would take place in two steps: (1) Exchange, High speed exchange & Memory bus, then (2) Arithmetic unit & controls.

← Estimates are that such a redesign could be ~~put~~ ^{phased in} ~~effect~~ after the 5th production machine -- probably early in 1962. A sizable reduction in manufacturing cost is expected.

Another opinion (held by ^{some} ~~the~~ responsible ^{DSD} ~~person~~ ^{managers}) is that STRETCH will not be re-engineered, but will be dropped as a "dead-end" ^{machine}. DSD would then plan to bring out an altogether new machine for announcement in 1963 which would be equal to or somewhat less than STRETCH performance, but would cost much less. The same ^{people} ~~person~~ also ^{say} ~~that~~ that DSD is losing interest in such large machines & is looking ^{more} to the larger market area ~~at~~ the ~~650-704~~ ~~area~~ performance level.

IV. Present Plans for Super-STRETCH

"Super STRETCH" is at present a very vague term which is being applied to a proposal granted by Corporate Research for AGC

Recombinations?

Best history - men of optimism

Present condition

- (Sinnance)
 - ACC
 - HVST
 - Fomboy
- present plans - distand group

manufacture - sells . . .

Q: fall out of Kyoto? - cannot
more STR's mfg

Q: - product improvement of STR
who will do?

Q: what about PSD -- They will
go ahead . . . must avoid
reveling of MILCOAP as 2090
Type

- large machine must be
general purpose in a class of future

present plans to distand group . . .
scatter talent -- some advantage
but loss of momentum could be
great

Honest delay will reflect on
whole company -- FSD will catch
breath on future bus & military
front

Possible Plans:

1. STR HVST stay in FSD
Production to FSD
no improved machine
- 2.

FSD Policy

- cannot spend corp profits on devel.
- MAPP money ^{amt} small + not for large efforts
- STRETCH improvement plan -- uses Knight personnel but in DSD program, -- had to get govt money for this --- (not a thing Corp Profits should be spent on)
- question of special modification
- special I/O etc -- handled as other comm. equip now.

- 3 -

Best Strategy:

- Have DSD turn STRETCH over to FSD minus its huge development ~~bill~~ bill, but plus the Corporate funds necessary to finish the models -- TRATOR is biggest headache.
- Have Knight Engineering push the redesign program to get the cost down + the performance up (For this purpose secure a few dozen of the ^{best} 10% engin.)
- ^{delivered} improved version of STRETCH early '62 -- program comp.
- concentrate on I/O applications of interest to govt -- Displays -- remote inputs -- real time control, etc. -- high speed printer.

- 2 -

- FSD must avoid another 7090 - ALLCOMP battle i.e. 2 machines in about same area
- could take over whole Stretch, Prog -- Then DSD would bring out another machine.

DSD plans to do a lot of technology research.

- FSD can't take over present STRETCH with its financial picture --- if Corporate would give it up -- DSD would immediately come in with Super machine
- STRETCH then have the imagination of the world need -- will fade in time.

- 4 -

Strategy (cont)

- Re: Super Stretch -- ^{Scantest set big component contracts any more}
- we are in no position to take a machine contract yet -- Technology
- danger if we don't take machine contract a competitor may ---
- Should be a Research contract -- with FSD keeping on top of situation
- Machine contract should be with FSD using Research as subcontractor -- necessary to hold to schedule + goals
- however -- will still need Corporate support for Cyg program Technology.