Conceptions of Multics

1. A set of technical objectives
2. A demonstration that the technical objectives can be realized
3. A demonstration of a near-optimal realization
4. A demonstration that a system realizing the objectives is very useful (if nearly optimal/despite not being nearly optimal)
5. A computer facility for Project MAC research
6. A computer facility for research in the M.I.T. community (a la CTSS)
7. The/an interactive multi-access computer system that will be (most) widely used in universities, industry, government
8. The multi-access software for the GE 645 computer
9. The multi-access software for a GE computer to follow the 645
10. A prototype for multi-access computer systems (hardware-software) to be marketed by several (many) manufacturers
11. A prototype of the computer utility (or component thereof)

FJCC

Dec. 17, 1965

Questions About Multics

1. What are the technical objectives of Multics? How valid and important are they?

2. Is the Multics system approaching a realization of the technical objectives? Will the Multics system, as when implemented, demonstrate and communicate the objectives to the computer world? (academic computer world? computer industry? government? nongovernmental users?) How fully implemented and how widely used will Multics have to be to demonstrate/communicate effectively?

3. Is the software implementation of Multics fairly near optimal, at least insofar as design is concerned, or has it been made obsolescent by advances in hardware technology or changes in cost factors since the software was designed? If a new hardware-software system design were made now, would it be much different (much better) than the design being implemented?

4. If and when Multics is ready for use by a community of users and user-developers, will the (Project MAC/M.I.T./BTL/GE) community be ready for Multics? Will it need Multics (for all, most, some, none of its work

that requires a computer)?

5. For research ~~direction~~ program on interactive problem solving and decision making, is it nessary/important/good to have a Multics, or can such a program be carried out just-as-well/almost-as-well/not-as-well-but-sooner-and-time-is-important with a less sophisticated, less comprehensive computer system?

6. What is the most reasonable estimate of the time scale of the projection of Multics into the future -- to use by system programmers in developing Multics without reliance on CTSS; to use by developers of utility programs, user-oriented programs, etc.; to use by substantive users in "user programming," problem solving, and decision making?

7. Considering the government's financial resources and research-and-development priorities, do you think it is ~~is it~~ worth spending a million dollars or so a year for 12 years more in order to consummate a demonstration (test) of the Multics concepts?

8. Considering Project MAC's financial resources and what you think its research-and-development priorities should be, do you think Project MAC should devote 2/3/1/2/1/3 its effort to

a. bringing Multics to a point of operation that will demonstrate the operating-system concepts to people who understand computers

b. bringing Multics to a point of development at which it will support m consoles in program-preparation applications (m = 16, 32, 64)

c. carrying Multics through the experience of developing a community of users and an extensive software base

d. making Multics the preferred M.I.T. (ARPA network) multi-access computer.

9. What should the Multics group do to improve its prospects of achieving the objectives judged worthwhile for it?

10. What should the interaction be between GE's plans (commitment) to manufacture a Multics-compatible follow-on to the 645 and MAC's prosecution of Multics?

11. What should the interaction be between BTL's plans (commitment) to continue to develop and use Multics and MAC's?

JCRL

Dec. 17, 1968