RULES FOR CENTRALLY DEVELOPED SYSTEMS
RULES FOR SYSTEMS DESIGNED FOR LARGE-SCALE, GENERAL PURPOSE COMPUTING EQUIPMENT

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1. GENERAL

1.01 This section prescribes the rules for computer-based information systems developed centrally for operation on large-scale, general purpose computing equipment in Operating Telephone Companies (OTCs).

1.02 Whenever this section is reissued, the reason for reissue will be listed in this paragraph.

2. RULES FOR OVERALL SYSTEM DESIGN

2.01 Systems will be designed with the expectation that when made operational in the OTC environment, they will share hardware, software, and human resources with other systems.

2.02 Unit record processing on EAM (except key-operated equipment) is not permitted.

2.03 Systems must be designed so that data center operating procedures conform to the Model Computer Center. (See Section 750-312-000.)

2.04 Systems must provide full data base recovery procedures.

2.05 Systems must use data set labeling only as generated automatically by the Standard Operating System. Optional user labels and special label processing routines are not permitted.

2.06 The initial installation of a system in an OTC must be supported by an installation test package. The need for an ongoing test package will be determined on an application-by-application basis.

3. RULES FOR HARDWARE/SOFTWARE ENVIRONMENT

3.01 The SRC with technical assistance from the SRC Support Staff and the BTL Technical Resource Group will specify the Standard Operating Environment(s) which will process centrally developed and/or maintained products. The environment(s) so specified is described in Section 007-203-101.

(a) Products under development which will not be centrally maintained will function on the Standard Operating Environment that is current at the time of Trial Company installation.

(b) The SRC Support Staff will notify the OTCs and the project groups generally six months prior to a change in the Standard Operating Environment. The actual amount of lead time will be a function of the impact of the change as determined by the SRC and its support staffs. When the new Standard Operating Environment is effective, all centrally maintained systems will function on that environment.

(c) Each project group will keep the SRC Support Staff notified of the system environments under which its system will function. One of

these must be the current Standard Operating Environment.

(d) Termination for support of a Standard Operating Environment will occur at the discretion of the project groups but no sooner than one year after the Standard Operating Environment has been changed.

3.02 The only nonapplication software which can be included as a part of a centrally developed product is that indicated in the Standard Operating Environment. There will be no modifications to this software to support any centrally developed product and no application program will be designed to use special features of subsystem software, for example, the internal reader option of IBM's HASP.

4. RULES FOR APPLICATION PROGRAMS

4.01 Application programs must have data address independence and must also have device independence within the constraints of the access method employed.

4.02 Application programs must not rely upon the speed of the hardware for proper functional execution.

4.03 If the project is to be locally maintained, application programs must be written in the standard version of COBOL. No other language may be used.

4.04 If the project is to be centrally maintained, its application programs must be written using language tools such that the code produced will operate in the Standard Operating Environment selected for the project's operation. Moreover, the central group must support these language tools throughout their required lifetime. The preferred languages are specified as part of the Standard Operating Environment and are generally considered to be COBOL, FORTRAN and PL1. The use of any other language must have the approval of the Director of the Center responsible for the project.

4.05 All volatile items such as tables, parameters, and control cards must be maintained external to the application program, for example, rate tables should not be coded as literals.

4.06 When optimizing tools exist in the Standard Operating Environment, the final compilation of centrally developed programs must be accomplished calling for optimum utilization of computer resources.

4.07 The only console messages application programs may generate are those reflecting a communication network abnormality or a potentially fatal data base problem where normal job termination procedures would be ineffective.

4.08 Programmed user abends must be unique within a program and be different from system generated messages and codes.

4.09 Application programs must be designed so that all internal company reports, whether on paper or other media, have headings which identify the system name, form number, and report date.

4.10 Techniques should be provided to determine the amount of space required in a direct access file based on volume.

4.11 Randomizing modules should be written such that recompilation is unnecessary as the file size varies.

5. RULES FOR SYSTEM DOCUMENTATION

5.01 It is anticipated that a future issue of this section will cite approved product documentation standards for centrally developed systems. It will be the responsibility of the SRC to evaluate and approve those standards which are currently under development for use by the respective central developing organizations.

5.02 To be acceptable, product documentation must contain at least the following information:

(a) Overall system description, flow, and major constraints.

(b) Installation guidelines.

(c) A statement of the manual and machine resources required and the performance expected in a specified environment with a specified load. This information must be based on trial results.

(d) The detailed description of each user accessible file and a general description of all other files.

(e) Output listings of the subschema (control blocks describing the resources available to a program in a data base environment) and the schema (control blocks describing the data base) for each application program.

(f) Parameters necessary to generate OTC control software, such as, transaction codes, network descriptions, transaction scheduling priorities, and all default overrides.

(g) A description of the programs called by each transaction on a per transaction basis.

(h) Detailed description of the method(s) used for data validation, data security, and file integrity.

(i) Detailed description of audit procedures employed by the system.

(j) Detailed description of all fallback procedures including: data base recovery, reconstruction and reorganization, checkpoint/restart, and general system recovery.

(k) Description of the internal performance measurement procedures embedded within the system.

(l) Description of the hardware/software environments upon which the system has been successfully tested including vendor-supplied hardware and software fixes and other system parameters that could affect job processing, for example, in the Standard Operating Environment—IBM such items as job queue parameters, SVC assignments, and esoteric device names should be described.

(m) Detailed explanations of all user messages and codes.

(n) Compiler output listings and link-edit control statements must accompany all locally maintained programs.

6. RULES FOR SYSTEM MAINTENANCE

6.01 All update activity must be accompanied by hard-copy information, describing the reason for the update, programs and procedures affected by the change, and implementation date.

6.02 All documentation should arrive as one package prior to the arrival of all job control cards, source and/or executable programs, which should also arrive as one package.

6.03 The receiving OTC must notify the proper maintenance authority upon receipt and installation of an update.

6.04 Update activity will consist of the entire updated modules and only modules with changes will be provided in order that the OTC need only copy the module to the appropriate library.

6.05 The data communication package defined in the Standard Operating Environment must be available and used as feasible for maintenance activity.

6.06 All job control data and source code for locally maintained programs must be 80 characters in length and must have sequence numbers in characters 73 through 80. These and executable programs must also be separately identifiable entities, for example, members of partitioned data set for IBM or separate files for Honeywell.

6.07 All trouble reports must use the standard trouble report format and severity codes as defined in Section 750-780-100.

6.08 OTC modification of centrally maintained software, schema or subschema is not permitted with the exception of job control information.