I. **Background**

Last January in describing the supercomputer segment of the computer industry, you will recall that I said if it need be described by a single phrase that phrase was "high risk -- enormously high risk -- both technical risk and market risk."

In March when we discussed computer systems I chose the single word "discipline" as the most dominant characteristic of Control Data's systems business. In an industry so totally dominated by a single competitor, and with ourselves having only a 2% market share, it is fundamental to have the product discipline to focus intensely on a market segment with best potential for us.

This afternoon we are going to discuss services. For services the most apt phrase is a "flexible sense of urgency." Other terms have been used such as "value-added" and "long term," but they, while fitting, are so broad as to be almost meaningless. I also thought of "misunderstood and poorly defined" because that's true too, but anyway the best
descriptor is: a flexible sense of urgency. I'll come back to
why in a minute. First let me give you some background. There
are three threads to the evolution of computer services.

(1) The oldest goes back more than fifty years when
tabulating equipment was used to provide payroll, accounting,
and statistical services. SBC, for example, was founded in
1931. [End Result slide] These computer based are "end
result" services. Customers are buying the result -- the
paychecks or whatever -- and not the use of the tool used to
produce the result. Computers enable the results to be
delivered more cost effectively. Expert knowledge of computers
and computer operations while essential to improving
profitability, is secondary to the knowledge and experience in
the field itself -- i.e. accounting, business operations, or
whatever.

(2) The second form of computer service came from a desire to
share an otherwise unaffordable computing resource. This was
most prevalent originally amongst scientists and engineers.
Either their company could not afford a computer or they could
only afford one most suited to accounting needs. [Computing
tool slide] In this computer service a "computing tool" or
"computing resource" is being sold rather than an "end
result." The impetus for "computing resource" services came
soon after the arrival of large expensive electronic computers, and by the early 1960's was developing into an identifiable segment of the industry. Great skill in cost effective use of computers and communications was the essential ingredient of success.

(3) The last thread is that of providing information services as opposed to processing services or end results. [Information Services slide] It is both the oldest and the newest. It is the oldest in the sense that traditional publishers, syndicators and others have long provided information services. It is the newest in the sense of using computers as an integral part of the delivery of such services. At first and to some degree still today, computers (and communications) were viewed as simply a faster and more individual method to deliver information contained in a large data base. Although this simple information access service persists, for the most part it has not been and is not cost effective. The key is "processed information" to which some value added is given. At first this "value added" was done manually -- most frequently via consulting services. A very extensive data base, now known as EIS, came about as a result of an anti-trust consulting service needing a well organized set of economic data for use by those providing the consulting. Ultimately the data base came to have an intrinsic value of its own -- especially for
use in conjunction with other value-added processing services. Thus in our Business Information Services data from the EIS data base is accessed by users doing market analysis processing.

In short the more value-added there is to information data base services the more they can be profitable.

As time has passed much more varied and more complex forms of value-added processing have been applied to organized sets of information or data. Computer based education is an example in which basic information is highly processed (by applying rules of learning) to achieve a desired outcome.

However, in spite of the many examples one could cite the processed information segment of services is truly just on the verge of opening up. The reason: artificial intelligence in the form of expert systems is beginning to provide critical technology for computers to do more meaningful processing and thus add significant value to information. An example of this new wave is the HELP system with its Medware data base.

[slide] Computing services thus has evolved -- is evolving I should say -- from these three types -- end result services, services which provide computing tools, and services which deliver information. As you would suspect many if not most computer services today are a mixture of these three types.
Now let me return to why "a flexible sense of urgency" is the term most appropriate in a discussion of computer services. The nature of computer services as with nearly all services, is that they are characterized by a long gestation period, and unlike hardware the gestation takes place not in the laboratory but out in the marketplace. The timing of the upward acceleration of that curve is largely unknown. To move outside the industry for a moment, McDonalds Corporation was founded in 1955. In their first 3 years, they sold 100M hamburgers. In the next 9 years they increased hamburger sales to 100 million every month. Today they are selling 100M every week. Looking at it a different way, it took McDonalds 12 years to reach $100M in revenue. In just 9 more years, they reached $1B in revenues. Nearer to home Arbitron was founded in 1949. It took 22 years for Arbitron to reach $11M in revenues and had only one profitable year before 1971. In the next 11 years it grew by a factor of 8. That is not to say that the gestation period should have taken that long. In fact there were definite blunders along the way, but it is likewise true that a good bit of market experimentation was required to find the right formula for growth. During the long slow start experimentation and uncertainty is dominant. The fast break in growth is generally felt to be only a year or two away. There is continuing disappointment in revenue growth and market penetration. This is particularly acute when the service is one
involving a new market development as opposed to one involving entering a well defined existing market. Yet sitting back and waiting for the turn before entering the market can be expensive or even impossible -- the competitors are already established. So on the one hand a pre-set inflexible approach to right marketing approach can be fatal, but so can a passive dependence on the passage of time to open up the market. This "inflexible sense of urgency" is required for market development.

In established markets only change offers a good chance for market entry. Deregulation in the airline industry is such an example.

Since the inception of the computer industry most computer services are ones best characterized as involving the problems of market development. But a high rate of -- technological change -- threatens even those which became modestly well-established in the last 15 years. Witness the time-sharing business vis-a-vis micro-computers.

With all these challenges, however, Computer Services offer Control Data its best chance for above average growth and profitability. [Computer Services slide] Today we are going to look at three of our six service businesses and in September we'll look at the others.
[Svcs. Mkt. slide] First let me give you a few overall statistics on this part of the computer industry. [Market Size slide] First to quickly size the total market for you, this chart gives the revenue as a whole.

II. Industry Data

As you examine services market segmentation, data is primarily organized by product rather than vertical market. [Market Segments slide] The most widely used categories are these: processing services, turnkey services, software and professional services. We'll look at each segment, the principal competitors, and where Control Data stands.

[Processing Seg. #1 slide] Processing Services. This is the most familiar portion of the computer services market, and combines elements of all three of the historical threads I mentioned. Ticketron would be an example of end-result service, there are some segments of information services such as Arbitron and so on. Processing Services accounts for about 1/3 of total sales revenue. Overall growth rate is about 13%.

ADP is the largest and is most often associated with the processing of accounting or financial data. GEISCO has been a traditional time sharing competitor. Shared Medical and Electronic Data Systems are niche market leaders in medical and insurance segments.
Control Data is second in the processing segment of computer services to ADP. In the business data processing segment we are likewise number two. In the scientific and engineering processing area, CDC is the leader competing with Boeing, McDonald Douglas, and UCCEL. Arbitron and Ticketron are likewise leaders in their respective segments of this market.

Turnkey. The turnkey segment (also referred to as value-added suppliers) comprises those vendors that configure combined hardware and application software to solve particular problems. The hardware is most typically micro or mini-computer related. It is sized at about $6 billion -- growing at about 27% annually.

In recent years this segment has been dominated by CAD vendors such as Computervision, Integraph, Autotral, and Daisy. The CAD sub-segment accounts for about half of total sales revenue ($3 billion) and is growing at about 38%.

Control Data's turnkey products include those of the CIM division about which you'll hear tonight and the FOCUS credit union system and Healthcare systems, both of which we'll discuss in September.
[Software #1 slide] **Software.** Both computer manufacturers and independent software developers supply packages. This market is dominated by IBM which accounts for $2.4B of the total. Only the major independents are shown on this slide: Cullinet, Management Science America and Informatics. Their products are principally made for IBM mainframe computers. There are literally hundreds of micro-computer software suppliers. The largest is Lotus at $160M -- the same size as Cullinet.

CDC is a very minor player in this market. With the exception of software sold in conjunction with Cyber computers -- about $50M, we have not approached this segment -- concentrating instead on the processing and turnkey segments.

[Prof. Svcs. #1 slide] **Professional Services.** This segment comprises those companies that provide facilities management and contract programming for other companies. From the list of competitors you can see that the market leaders are Computer Sciences, heavy in facilities management, and Planning Research.

[Prof. Svcs. #2 slide] Control Data's participation is really limited to our field analyst revenues. For purposes of representation, I have included Business Advisors in this segment.
In the past five years, the market has grown from 14B to 30B in 1984. Looking ahead, it will grow to 65-70B by 1988. Packaged software is projected to account for more than half the market by 1988, however as the line between packaged software and turnkey systems becomes fuzzier it is not at all clear these definitions will hold up.

Computer services is a highly fragmented, highly competitive industry with many market and application specialties. No one company has even 5% of the market. Our total market share is about 4%, or $1.2B in 1984, and in total that is the largest market share.

Once again market data is gathered in the four "product" defined segments we have just seen. Competitive position, strengths, weaknesses and strategies, however, are best looked at on a vertical market rather than a product basis. We have defined our computer services that way and are engaged in six: Scientific and Engineering Services, Commercial Services, Education Services for K-12 and vocational schools, Financial Services, Healthcare Services, and Economic Development Services. As I noted earlier, today we will discuss the first three of these and in September the last three.

First George Troy.