"CONTROL DATA'S FOUR-PART OPERATIONAL STRATEGY"

REMARKS BY

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TO

COMPUTER TRADE PRESS BRIEFING

AT

THE DECATHLON CLUB

BLOOMINGTON, MINNESOTA

TUESDAY EVENING, SEPTEMBER 14, 1976
GOOD EVENING. I APPRECIATE THIS OPPORTUNITY TO PROVIDE YOU A BIT OF BACKGROUND TO SET THE STAGE FOR TOMORROW’S PRESS BRIEFING.

SEEING THIS BROAD COLLECTION OF NEWSPEOPLE REPRESENTING PUBLICATIONS FROM COAST-TO-COAST GIVES ME AN OPPORTUNITY TO LET YOU IN ON A BIT OF LITTLE-KNOWN JOURNALISTIC HISTORY.

IT RELATES TO THE FIRST TIME THAT CONTROL DATA, AS A CORPORATE NAME, EVER APPEARED IN PRINT. IT WAS NOT IN THE WALL STREET JOURNAL...IT WAS NOT IN ELECTRONIC NEWS...NOR WAS IT IN BUSINESS WEEK...NOT EVEN IN FORBES, WHICH HAS A HABIT OF PORTRAYING OUR COMPANY IN RATHER STRANGE WAYS.

THE FIRST PUBLIC MENTION APPEARED ON -- OF ALL PLACES -- THE SPORTS PAGE...IN A QUESTION POSED ON JULY 30, 1957, BY A MINNEAPOLIS SPORTS COLUMNIST WITH A PENCHANT FOR DROPPING BUSINESS TIDBITS ONTO THE SPORTS PAGE.

HIS NAME WAS, AND IS, SIDNEY HARTMAN...HIS COLUMN WAS “HARTMAN’S ROUNDUP.” HERE’S THE TEXT OF THE ONE SENTENCE QUESTION WHICH HE ASKED HIS READERS:

“HAVE SEVERAL FORMER UNIVAC PEOPLE RESIGNED FROM THE ST. PAUL SPERRY-RAND BRANCH TO FORM A FIRM CALLED CONTROL DATA THAT WILL DEAL IN ELECTRONIC RESEARCH?”
THAT WAS THE RATHER INAUSPICIOUS INTRODUCTION OF CONTROL DATA TO
THE WORLD...WEEKS BEFORE ANY FORMAL ANNOUNCEMENT WAS PLANNED.
TOMORROW'S EVENT WILL, WE HOPE, BE SOMewhat MORE AUSPICIOUSLY
HANDLED.

I'D LIKE TO BEGIN MY REMARKS TONIGHT ON A RATHER SERIOUS NOTE...
ABOUT SCORES OF TRAGIC AIRCRAFT ACCIDENTS WHICH OCCUR EACH YEAR.

WHEN ONE OF OUR MODERN DAY JETS FLIES AT SUPersonic SPEEDS, THE
AIRWAVES FROM ITS JET ENGINES ARE EXTREMELY UNSTABLE. THEN, IF
ANOTHER PLANE GETS TOO CLOSE TO ITS TURBULENT WAKE, THAT PLANE
BECOMES UNSTABLE AND CRASHES. THIS RESULTS IN MILLIONS OF DOLLARS
OF AIRCRAFT LOSSES ANNUALLY...AND IT IS OFTEN THE CAUSE OF THE
LOSS OF HUMAN LIVES.

FOR YEARS, SCIENTISTS HAVE BEEN TRYING TO SOLVE THIS RATHER
PERPLEXING PROBLEM...WITHOUT ANY APPARENT SUCCESS. THEY WERE
INCAPABLE OF COMPUTING THE EXTREMELY COMPLEX MATHEMATICAL
EQUATIONS INVOLVED IN MODELING THE PROBLEM AND IN CALCULATING
ALL OF THE VARIOUS AIR AND VELOCITY FORCES INVOLVED.

NOW, FOR THE FIRST TIME, REAL PROGRESS IS BEING MADE. SCIENTISTS
AT THE NASA LANGLEY RESEARCH CENTER TELL US THAT A BREAK-THROUGH
IS BEGINNING TO OCCUR. THIS IS BECAUSE THEY ARE USING A SUPER
COMPUTER -- THE STAR -- WHICH CONTROL DATA HAS SOLD TO THEM.
I TELL THIS STORY FOR A SPECIFIC REASON OTHER THAN JUST STAR. IT IS AN EXCELLENT EXAMPLE OF CONTROL DATA’S FOUR-PART OPERATIONAL STRATEGY WHICH CONTINUES TO UNFOLD.

NOW I KNOW THAT THERE HAVE BEEN THOSE WHO WERE SKEPTICAL AS TO WHETHER THERE IS REALLY ANY CENTRAL STRATEGY BEHIND THE SOMEWHAT FRENETIC-APPEARING GROWTH WHICH HAS OCCURRED DURING THE 19 YEARS OR SO SINCE SID HARTMAN SET US IN MOTION.

IN FACT, SOMEONE ONCE REFERRED TO US AS THE CHRISTOPHER COLUMBUS COMPANY. PERHAPS YOU KNOW THE STORY.

CHRISTOPHER COLUMBUS STARTED OUT ON A VOYAGE...NOT KNOWING EXACTLY WHERE HE WAS GOING. WHEN HE GOT THERE, HE DIDN’T KNOW WHERE HE WAS. AND WHEN HE RETURNED, HE DIDN’T KNOW WHERE HE’D BEEN.

NOW I’M NOT AS OLD AS CHRISTOPHER COLUMBUS...OR EVEN BILL NORRIS... BUT I’VE BEEN AROUND CONTROL DATA A LONG TIME AND THE OVERALL THRUST WHICH WE’VE BEEN FOLLOWING FOR THE LAST 19 YEARS OR SO IS REALLY RATHER STRAIGHT FORWARD...CONSISTENT...AND, I THINK, EASY TO UNDERSTAND.

THIS STRATEGY INVOLVES FOUR ELEMENTS. ONE OF THEM REALLY PROVIDES THE UNBRELLA -- THE BASIC CONCEPT WHICH GUIDES AND TIES TOGETHER THE OTHER THREE SUPPORTING CONCEPTS. I’LL START WITH THESE SUPPORTING STRATEGIES.
FIRST THERE ARE LARGE-SCALE COMPUTERS AND PERIPHERAL PRODUCTS. THIS IS THE HARDWARE ELEMENT.

CONTROL DATA IS THE UNQUESTIONED LEADER IN THE LARGE-SCALE SEGMENT OF THE COMPUTER BUSINESS. AND IT HAS BEEN FOR MANY YEARS.

LET ME GIVE YOU SOME INSIGHT INTO THE EVOLUTION OF OUR COMPUTER CAPABILITIES. IN 1955, AN EIGHT-HOUR WEATHER FORECAST COULD BE PRODUCED ON A COMPUTER...AFTER CALCULATING FOR NINE HOURS! THE RESULT WAS USUALLY 100% ACCURATE. THE REASON IS OBVIOUS. BY THE TIME THE PREDICTION WAS CALCULATED AND GIVEN TO THE METEOROLOGIST, ACTUAL WEATHER BEING PREDICTED WAS ALREADY HISTORY.

THIS SIMPLE APPLICATION JUSTIFIED USING THE LARGEST AND MOST POWERFUL SYSTEM OF THE TIME. IN FACT, IF YOU RECALL, CONTROL DATA'S FIRST CUSTOMER BACK IN 1960 WAS FLEET NUMERIC WEATHER CENTER IN MONTEREY, CALIFORNIA. THIS ORGANIZATION USED THAT 1604 COMPUTER IN ITS PIONEERING EFFORTS TO IMPROVE WEATHER FORECASTING.

TODAY, CONTROL DATA CONTINUES TO OFFER THE MOST POWERFUL SYSTEMS COMMERCIALLY AVAILABLE -- OUR STAR. STAR IS MORE THAN 100 TIMES AS POWERFUL AS THAT ORIGINAL 1604 COMPUTER WHICH WE SOLD TO FLEET NUMERIC WEATHER CENTER.

A FEW WORDS ON STAR ITSELF. THE TOTAL STAR SYSTEM INVOLVES A CONCEPT POPULARLY KNOWN AS "DISTRIBUTED PROCESSING." AT CONTROL DATA THIS CONNOTES "THE DELEGATION OF A TASK TO AN APPROPRIATE RESOURCE." I EMPHASIZE
THE WORD APPROPRIATE. STAR IS A COMPUTATIONAL RESOURCE. ITS USERS DELEGATE PROBLEMS TO IT THAT CONVENTIONAL SYSTEMS CANNOT HANDLE. CONVERSELY, STAR IS REMOVED FROM THE FUNCTIONS THAT CAN BE ACCOMPLISHED WITH A SMALLER SYSTEM. THE PHILOSOPHY, THEREFORE, OF THIS DISTRIBUTED PROCESSING CONCEPT IS TO MAXIMIZE USE OF AVAILABLE RESOURCES.

INCIDENTALLY THIS IDEA OF DISTRIBUTION WAS PART OF OUR HARDWARE STRATEGY FROM THE BEGINNING. PERHAPS SOME OF YOU WILL REMEMBER THAT THE 160-A MINICOMPUTER WAS INTRODUCED WITH THE 1604 AND WE REGISTERED THE TRADEMARK "SATELLITE" TO DESCRIBE THIS COMPUTING CONCEPT.

WELL YOU’LL HEAR MUCH MORE ABOUT STAR TOMORROW. I ENCOURAGE YOU TO PAY PARTICULAR ATTENTION TO ITS VECTOR PROCESSING FEATURE. IT RADICALLY DEPARTS FROM CONVENTIONAL SYSTEMS ON THE MARKET TODAY.

NOW LET ME DESCRIBE THE SECOND ELEMENT -- DATA COMMUNICATIONS NETWORKS. I’M SURE YOU CAN SEE HOW THIS DEVELOPMENT CAME ABOUT... BECAUSE IN EXACTLY THE SAME WAY THAT IT MAKES SENSE TO SPREAD COMPUTING TASKS OVER SEVERAL COMPUTERS OF VARYING CAPABILITIES -- AS IN THE STAR SYSTEM...OR IN THE OLDER 1604/160-A "SATELLITE" CONCEPT -- IT IS ALSO DESIRABLE TO DISTRIBUTE COMPUTING POWER TO MANY GEOGRAPHICALLY DISPERSED USERS.

DEVELOPMENT OF TODAY’S COMPLEX AND ELABORATE COMMUNICATIONS NETWORK TECHNOLOGY BEGAN FOR US IN 1965 WITH A SINGLE LINK FROM
BOEING IN SEATTLE TO OUR OFFICE IN LOS ANGELES. THE COMPUTERS INVOLVED AT THE ENDS OF THAT LINK WERE A CDC 6600 AND ONE OF OUR EARLY MINICOMPUTERS.

FROM THAT POINT AND FOR THE PAST DOZEN YEARS, WE HAVE CONTINUED TO INTRODUCE ADDITIONAL DATA COMMUNICATIONS NETWORK PRODUCTS, IN AN EVOLUTIONARY MANNER. ALTHOUGH WE DO NOT PUBLICLY ANNOUNCE NEW MODELS OF THE NETWORK AS WE DO WITH OUR COMPUTER SYSTEMS, OUR USERS GAIN PRICE/PERFORMANCE BENEFITS FROM EACH NEW MODEL EXACTLY AS THEY DO WITH NEW COMPUTERS. AND, LIKE OUR COMPUTERS, THERE ARE MANY DATA COMMUNICATION NETWORKS...BIG ONES...LITTLE ONES...SIMPLE ONES...COMPLEX ONES...SPECIAL-PURPOSE ONES...GENERAL-PURPOSE ONES. OF COURSE, THE BIGGEST AND MOST COMPREHENSIVE IS THAT ONE WE STARTED IN 1965. IT IS THE ONE WE DEVELOPED AS PART OF OUR OWN DATA SERVICES BUSINESS.

TODAY, NO OTHER COMPANY HAS THE TOTAL WORLDWIDE CAPABILITY WE POSSESS IN THIS NETWORK. IT CONNECTS SEVEN MAJOR COMPUTER CENTERS IN THIS COUNTRY, PLUS MORE THAN 100 OTHER CENTERS IN NORTH AMERICA...SOUTH AMERICA...EUROPE...AUSTRALIA...SOUTH AFRICA...AND THE NEAR EAST.

BUT AS I SAID, CONTROL DATA BUILDS NETWORKS FOR OTHERS AS WELL. SOME OF THE MORE FASCINATING ARE THE SPECIAL-PURPOSE ONES -- LIKE THE ONE WE DELIVERED TO THE FEDERAL RESERVE **Bank**. THIS NETWORK, THROUGH THE CENTRAL SWITCHING POINT IN CULPEPPER, VIRGINIA,
IS CAPABLE OF TRANSFERRING AN AVERAGE OF 120 BILLION DOLLARS AN HOUR IN TREASURY TRANSACTIONS. ANOTHER FUNDS TRANSFER NETWORK IS IN OPERATION FOR THE BARCLAYS BANK IN ENGLAND.

THE SIMPLER NETWORKS WE DELIVER ARE THE MORE COMMON ONES, AND FOR THE MOST PART, THEY ARE NOT VERY VISIBLE. THEY ARE JUST AN ORDINARY PART OF THE COMPUTER SYSTEMS WE DELIVER EVERY DAY.

THE THIRD ELEMENT OF OUR STRATEGY EVOLVED RATHER NATURALLY AS A LOGICAL EXTENSION OF THE FIRST TWO. WE CALL IT OUR "SERVICES STRATEGY." ONCE WE HAD DEVELOPED OUR COMPUTER HARDWARE EXPERTISE, AND THE ABILITY TO DISTRIBUTE THIS PROBLEM-SOLVING POWER THROUGH DATA COMMUNICATIONS NETWORKS, IT MADE SENSE TO PROVIDE CUSTOMERS THE OPPORTUNITY TO SHARE TIME ON THESE COMPUTERS -- THAT IS, TO OFFER DATA SERVICES.

AS A MATTER OF FACT, OUR FIRST DATA SERVICES OFFERING WAS MADE AVAILABLE ON THE OLD 1604, THE WORLD'S FIRST LARGE TRANSISTORIZED COMPUTER. IT OCCURRED WHEN WE PROVIDED COMPUTING POWER FOR BUSINESS DATA PROCESSING TO A NUMBER OF MINNEAPOLIS COMPANIES. AS WE ADDED MORE SERVICES -- EDUCATION...FINANCIAL...ENGINEERING...CONSULTING AND A WHOLE HOST OF OTHERS -- I REMEMBER THAT SOME OF OUR CRITICS AT THAT TIME SERIOUSLY QUESTIONED THIS DIVERSIFICATION.

SINCE THEN, THE RAPID GROWTH OF SERVICES -- TO THE POINT WHERE TODAY IT IS A SIX BILLION DOLLAR MARKET -- HAS ABSOLUTELY CONFIRMED THE WISDOM OF OUR DIRECTION. IN MORE RECENT YEARS, INFLATION
AND CAPITAL SCARCITY HAVE BECOME DOMINANT CHARACTERISTICS OF THE WORLD ECONOMY. THIS HAS INTENSIFIED THE DEMAND FOR DATA SERVICES. THIS CAN ONLY INCREASE IN INTENSITY IN THE YEARS AHEAD. TODAY, WE BELIEVE WE ARE THE LEADING DATA SERVICES SUPPLIER IN THE WORLD, IN TERMS OF VOLUME AND IN THE BREADTH OF OUR APPLICATIONS.

THE FOURTH SEGMENT OF OUR STRATEGY IS THE CENTRAL FORCE -- THE BASIC CONCEPT -- WHICH DRIVES THE HARDWARE, NETWORK AND SERVICES STRATEGIES. IT IS THE APPLICATIONS OR PROBLEM SOLVING ELEMENT. WHEN YOU COME RIGHT DOWN TO IT, OUR WHOLE GENERAL THRUST IS REALLY AN APPLICATIONS STRATEGY. OUR COMPUTER AND PERIPHERAL STRENGTH, OUR NETWORK LEADERSHIP, OUR SERVICES CAPABILITY...THEY ARE THE TOOLS -- THE MEANS -- TO IMPLEMENT THIS APPLICATIONS STRATEGY. EACH YEAR THESE TOOLS IMPROVE -- NEW MODELS ARE ANNOUNCED...NEW CAPABILITIES ARE DEVELOPED. BUT THE IDEA IS ALWAYS THE SAME...TO APPLY THESE TOOLS TO APPLICATIONS WHERE THE NEED FOR GREATER PRODUCTIVITY CAN BE ASSISTED BY USING COMPUTER TECHNOLOGY.

OR SAID YET ANOTHER WAY, THE FIRST THREE ELEMENTS ALL COMBINE TO IMPLEMENT THE FOURTH ELEMENT -- NAMELY, THE ABILITY TO PROVIDE SIMPLE ANSWERS...TO THE COMPLEX PROBLEMS...OF PEOPLE EVERYWHERE.

THE LIST OF APPLICATION AREAS WHICH ARE MAJOR STRENGTHS FOR CONTROL DATA HAS GROWN SIGNIFICANTLY OVER THE YEARS.
ONE LARGE REVENUE-PRODUCING APPLICATION AREA IS STRUCTURAL ANALYSIS. THE SOFTWARE WHICH IS AVAILABLE IN THIS AREA IS APPLICABLE TO BRIDGE DESIGN...OFF-SHORE PLATFORM ANALYSIS...AND AIRCRAFT SIMULATION, TO NAME A FEW.

AS ONE CUSTOMER DESCRIBED OUR OFFERINGS IN THIS LATTER AREA: "IT'S NO LONGER NECESSARY TO BUILD...FLY...AND POSSIBLY CRASH AN AIRCRAFT TO TEST IT." ALL AIRCRAFT DESIGN AND SIMULATION IS CURRENTLY DONE ON-LINE WHICH OBVIOUSLY REDUCES THE LIABILITIES AND COSTS. THE NET RESULT IS LOWER TRANSPORTATION COSTS IN AIR TRAVEL.

THE GENERAL SCIENTIFIC/ENGINEERING FIELD HAS ALWAYS BEEN A MAJOR SOURCE OF REVENUE FOR CONTROL DATA. IT ALWAYS WILL BE. NUCLEAR REACTORS ARE DESIGNED AND TESTED THROUGH THE USE OF OUR RESOURCES... AND THE IMPACT OF NUCLEAR WASTE ON THE ENVIRONMENT IS A GROWING AND VERY IMPORTANT APPLICATION. THREE LARGE USERS OF OUR SCIENTIFIC/ENGINEERING APPLICATIONS IN THIS AREA ARE WESTINGHOUSE, BABCOCK AND WILCOX AND COMBUSTION ENGINEERING COMPANY.

AN APPLICATION AREA WHICH IS CONTINUING TO EMERGE AT A RAPID RATE IS DATA MANAGEMENT. AS NETWORKS EVOLVE, SOPHISTICATED TECHNIQUES IN THIS AREA ARE BECOMING MORE AND MORE NEEDED. WE ARE ACTIVELY DEVELOPING SYSTEMS AND SOFTWARE TO MEET THESE EVOLVING REQUIREMENTS.
ANOTHER AREA IS GRAPHICS. I WANTED TO PARTICULARLY COMMENT ON THIS BECAUSE CONTROL DATA HAS INITIATED DEVELOPMENT EFFORTS TO COMBINE A GRAPHICS CAPABILITY WITH OTHER APPLICATIONS SUCH AS STRUCTURAL ANALYSIS.

THIS COMBINATION, FOR EXAMPLE WILL ENABLE AN ARCHITECTURAL ENGINEER TO VISUALIZE A STRUCTURE WHILE SIMULTANEOUSLY COMPLETING THE ASSOCIATED ANALYSIS. THIS FEATURE WILL SIGNIFICANTLY REDUCE THE MANPOWER AND TIME REQUIRED TO DESIGN A COMPLEX STRUCTURE SUCH AS AN OFF-SHORE DRILLING PLATFORM.

THIS IS JUST A BRIEF EXPOSURE TO THE VAST NUMBER OF CONTROL DATA APPLICATIONS IN THE MARKET TODAY. MY INTENT IS SIMPLY TO SOLIDIFY IN YOUR MIND OUR STRATEGY IN OFFERING SOLUTIONS THAT RELATE TO THE CUSTOMERS’ PROBLEMS.

NOW LET ME RETURN TO THAT JET STREAM PROBLEM...AND DEMONSTRATE HOW IT ILLUSTRATES OUR STRATEGY.

COMPLEX, THREE-DIMENSIONAL STUDIES OF DOWNSTREAM TURBULENCE ARE PERFORMED ON THE STAR LOCATED AT LANGLEY -- AN EXAMPLE OF OUR COMPUTER CAPABILITY. AT THE SAME TIME, GETTING THE MOST EFFECTIVE USE OF STAR’S TREMENDOUS PROBLEM-SOLVING CAPABILITY IS A JOB FOR SOMETHING MORE THAN THE ORDINARY SCIENTIST OR ENGINEER. A TEAM OF CONTROL DATA PROGRAMMING CONSULTANTS HAS BEEN INVOLVED IN THE LANGLEY STAR PROJECT SINCE ITS INCEPTION -- AN EXAMPLE OF OUR HELPING THEM WITH THEIR APPLICATIONS NEEDS.
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FINALLY, SINCE STAR IS BUT ONE COMPUTATIONAL OR PROBLEM-SOLVING
RESOURCE AMONG MANY, LANGLEY REQUIRES ITS OWN INTERNAL DATA
COMMUNICATIONS NETWORK TO TIE ITS TOTAL RESOURCES CONVENIENTLY
TO ITS USERS. AND HERE THE THIRD ELEMENT -- NETWORKS -- COMES
INTO PLAY.

AND, REALLY, THAT’S WHAT CONTROL DATA’S BUSINESS TODAY IS ALL
ABOUT -- COMPUTERS...NETWORKS...SERVICES...SOLUTIONS TO PROBLEMS.
TOMORROW, AS WE INAUGURATE THE INCLUSION OF THE STAR COMPUTER
INTO OUR SERVICES NETWORK, WE’RE MAKING A SIGNIFICANT STEP FOR-
WARD. UNTIL NOW, THE COMPLEX CALCULATIONS, WHICH ONLY STAR CAN
DO, HAVE BEEN RESERVED PRIMARILY TO A FEW GOVERNMENTAL AGENCIES
WHICH HAVE BEEN ABLE TO AFFORD TO PURCHASE ONE OF THESE SUPER
COMPUTERS.

NOW, HOWEVER, ITS CAPABILITIES ARE AVAILABLE TO ANYONE. THIS
OPENS UP A WHOLE NEW RANGE OF EXCITING APPLICATIONS. THAT’S WHAT
TOMORROW’S NEWS BRIEFING WILL BE ALL ABOUT.

IT IS WITH SPECIAL PLEASURE THAT I WELCOME ALL OF YOU HERE
TONIGHT. I FEEL CONFIDENT THAT YOU WILL HAVE AN INTERESTING
AND REWARDING DAY TOMORROW.