The Evolution of Information Technology: Origins

Ian King, Sr. Vintage Systems Engineer
Living Computer Museum
Vulcan, Inc.
Before the beginning: process automation
Before the beginning: tabulation
Before the beginning: tabulation
Before the beginning:
automated calculation
Electronic digital computer
Electronic digital computer
Electronic digital computer
Electronic digital computer

A fanciful mechanical Turing machine’s TAPE and HEAD. The TABLE instructions might be on another "read only" tape, or perhaps on punch-cards. Usually a "finite state machine" is the model for the TABLE.
First (?) electronic digital computer
First (?) electronic digital computer
First (!) electronic digital computer
Programming the ENIAC
Program? Data?
The von Neumann approach

0010 0101 0001

593_{10} ‘IQ’

TAD 0001

- two’s complement add, AC ← (location 0001) + AC
Stored Program Electronic Digital Computer
Stored Program Electronic Digital Computer
UNIVAC I
UNIVAC I
And what of IBM?
IBM’s greatest hits
IBM System/360
IBM System/360
IBM System/360
When dinosaurs ruled the earth
When dinosaurs ruled the Earth
Programming paradigms
Programming paradigms
Programming paradigms
Computer/human interaction
Outliers: Whirlwind
Outliers: Whirlwind
Outliers: SAGE

First powered: 1963
Retired: 1983

Weight: ~250 tons
Tube count: ~60,000
Outliers:
SAGE
Outliers II
Outliers II: Compatible Time Sharing System
Under the hood: working store

- Acoustic delay lines
- Williams tubes
Building the machine: working store

- Magnetic drum
Building the machine: working store

- Magnetic core

Figure 6-1.— A magnetic core.

Figure 6-3.— Magnetic core showing "X," "Y," inhibit, and sense lines.
Building the machine: working store

- Magnetic core
Questions?