Step by Step boot process

* Fast start is essential

1. Startup process/BIOS initialization BIOS = Basic Input/Output System

* When you turn on the computer, a chain of events is triggered
  + BIOS finds a boot device based on BIOS settings
  + Looks in active partition
  + Reads Boot Loader
  + Boot Loader 1st OS file to be used
    - Starts Windows
* CMOS Storage
  + Order of Boot -----
  + Memory configuration
  + Internal device state (soundcard enabled)
* Hardware has been initialized

1. Windows is responsible from here.
   * Windows7 Bootmgr file 🡪 where boot load occurs
     + Responsible for initializes the BCD (Boot Configuration Data)
       - Contains the entries displayed in the boot menu
   * XP = Boot.ini
   * Where you can press F8 to change the startup settings.
2. Boot Folder
   * Boot Configuration Database (BCD) aka BCD Store.
     + Used by Bootmgr
   * Contains boot parameters that control how the OS is started.
   * XP Boot.ini at the root of Active Partition.
   * BCDEdit.exe
     + Command line tool allows manage of entries
     + Located in WindowsSystem32 Vista partition (7?)
     + BCD
     + BCD Log
     + BCD Log1
3. Windows Loader
   * When you select or don’t select (default)
   * Boot manager uses the info in BCD to find Windows Loader
     + Winload.exe
       - Found in Windows\System32
   * “Starting Windows” appears
     + In XP, the name is NTLDR
4. Kernel & the System Registry Hive
   * The core of Win7 OS in ntoskrnl.exe
     + Implements the BIOS function that work with the CPU
       - Initializes many functions
   * Works with System Registry
     + Registry hive contains the configurable parameters
   * Startup parameters drivers & services
   * Drivers
     + Much of the Core of the OS functionality
     + Support the hardware functionality
   * Services
     + Independent of the logged-on user, including background activities.
     + Can be configured to start automatically
     + Can be configured to start when a specific user logs on.
   * System Registry Hive
     + Contains info for installed apps, including elements of windows.
       - HKEY\_LOCAL\_MACHINE software (RegEdit)
5. Winlogon & the Logon screen
   * Process responsible for displaying the logon interface
   * Ctrl+Alt+Del sequence
     + Secure Attention Sequence (SAS)
   * Password change