Software Engineering – I

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Operating Systems

1. Windows NT: Designed as a completely new operating system architecture that was different from the MS-DOS-based Windows 3.x series. Windows NT introduced a new hybrid kernel, was multi-user, supported preemptive multitasking, and was designed to be secure and portable across several hardware architectures.

2. Mac OS to macOS:

   - Mac OS X (macOS): Introduced in 2001, represented a significant overhaul of the classic Mac OS, incorporating features from NeXTSTEP/OPENSTEP after Apple acquired NeXT. This re-engineering introduced a Unix-based foundation (Darwin) and a new user interface known as Aqua.

   - macOS Big Sur: Represented another major redesign in terms of aesthetics and introduced new security features and enhancements that prepared it for a transition to Apple Silicon processors.

3. Unix to Linux: Linux was initially created by Linus Torvalds as a free and open-source alternative to Minix, a Unix-like system. Linux adheres to Unix principles but is not derived from its codebase. Instead, it was developed to be compatible with POSIX, replicating Unix functionalities.

Software Applications

1. Microsoft Office:

   - Office 2007: Introduced the Ribbon interface, replacing traditional menus and toolbars, which was a substantial user interface re-engineering aimed at improving usability and accessibility.

   - Office 365 / Microsoft 365: Transitioned the suite to a subscription-based cloud service, continually updated and integrated with cloud services like OneDrive and Microsoft Teams.

2. Adobe Creative Suite to Adobe Creative Cloud:

   - Adobe re-engineered its entire suite of tools like Photoshop, Illustrator, and Premiere Pro from standalone products into a cloud-based subscription model, enhancing feature integration, offering cloud storage, and ensuring continuous updates.

3. AutoCAD: Has undergone numerous re-engineerings to transition from a simple CAD program to a powerful, full-featured design and drafting system incorporating 3D modeling and rendering capabilities, and mobile and web-based applications.

4. Netscape Navigator to Mozilla Firefox:

   - After the decline of Netscape Navigator, the codebase was open-sourced leading to the creation of Mozilla Firefox. Firefox was re-engineered to be more secure, faster, and more extensible with a new rendering engine (Gecko).

5. Apple iWork:

   - A significant redesign in 2013 modernized its user interface and improved compatibility with Microsoft Office documents, as well as enhancing integration with iCloud for better cross-device usability.