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CS-3450

Homework 1

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Name: Seamless workspace integration

Context:

Many professionals and students work from home today and find themselves using multiple different computers in their daily work. It could be a combination of a work laptop, personal laptop, desktop, or even a console. The challenge arises in creating a seamless and efficient workspace that allows easy switching between the two without the hassle of changing physical inputs or losing productivity.

Problem:

The main issue is the inconvenience and time wasted in physically switching between sources, which may involve swapping cables for the monitor, keyboard, or mouse. A USB hub cant be used to have both connected simultaneously, and still requires switching out that connection. The only way to have both connected at the same time is to have duplicate peripherals to avoid constant reconnection.

Forces:

* Efficiency
  + The need to quickly and effortlessly switch between computers to maintain productivity.
* Space
  + Limited desk space makes it impractical to have multiple sets of keyboards, mice, or monitors
* Cost
  + Additional cost with having duplicate peripherals.
* Simplicity
  + A preference for a clean and uncluttered workspace, without excessive cables, and devices.

Solution:  
Utilizing a KVM switch that supports multiple computers and monitors. This allows you to connect your keyboard, mouse, and monitors to the switch, then connect the switch to your input sources. With this setup, you can easily switch control between the computers using a simple button press or a hotkey without needing to physical swap cables or peripherals. The switch should support the specific outputs the sources use, and ensure it has enough USB ports for peripherals.

Sketch – before and after KVM

A diagram of a computer system

Description automatically generated

Resulting Context

After setting up the KVM switch, the workspace becomes more efficient and streamlined. You can effortlessly switch between computers without any physical reconfiguration, saving time and maintaining productivity. The solution also reduces clutter and frees up desk space, eliminating the need for duplicate peripherals. While this does solve the issue with monitors and IO, it leaves other areas unsolved. The first thought is audio. If we don’t have monitors that can support audio, we will either need to rely on built in audio, or have separate audio devices for each source.

Examples

* A software engineer uses a work laptop for development work, a laptop for school and personal use, and a pc desktop for gaming. By running all of the inputs through the KVM switch, they can use the same keyboard, mouse and monitors for all of their needs.