SURFACE COMPUTING
What is Surface Computing?

Surface computing is a new way of interacting with information on various "surfaces," rather than through a traditional device (i.e., keyboard and mouse on a computer, keypad on a mobile phone).

Surface computing is the term for the use of a specialized computer GUI in which traditional GUI elements are replaced by intuitive, everyday objects. Instead of a keyboard and mouse, the user interacts directly with a touch-sensitive screen. It has been said that this more closely replicates the familiar hands-on experience of everyday object manipulation.
Early work in this area was done at the University of Toronto, Alias Research, and MIT. Surface work has included customized solutions from vendors such as GestureTek, Applied Minds for Northrop Grumman,. Major computer vendor platforms are in various stages of release: the iTable by PQ Labs, Linux MPX,, the Ideum MT-50, and Microsoft Surface.
Surface computing is slowly starting to catch on and is starting to be used in real world applications. Here is just a sample of what surface computing technologies have been used. The Microsoft Surface is starting to pick up popularity and has been used in various places and venues. AT&T became the first retailer to use Surface to help their customers purchase phones. Customers could place the phones on the Surface...
and receive full phone specs, as well as pricing.[7] It has also been used in a wide variety of locations which include hotel lobbies, such as Sheraton Hotels,[8] as well as venues which included Super Bowl XLIII to help police organize and monitor the event in great detail.[9] It is also starting to gain use in the broadcasting industry and has been used by MSNBC during the 2008 US Presidential Elections. However, USD $15,500 (device only) is still considered expensive for most businesses. There are other new surface computing applications that are still being developed, one of which is from the MIT Media Lab where students are developing wearable computing systems that can be used on almost any surface. The name of this device is SixthSense.

Surface computing
typically includes three key attributes:

- **Direct interaction:**
  Users can actually "grab" digital information with their hands—interacting with content by touch and gesture, without the use of traditional devices such as a mouse and keyboard.

- **Multi-Touch:**

  Surface computing recognizes many points of contact simultaneously, not just from one finger, but up to dozens of items at once.

- **Multi-User:**
Surface computing allows several people to gather around any surface, providing a collaborative, face-to-face computing experience.*

Some solutions even recognize objects that users place on the surface triggering responses. For instance, if a user places a digital camera on the surface, it pulls pictures from the camera so they can interact with the library of photos.
• Why Should I Use Surface Computing?

Surface computing is an interactive out-of-home solution, meaning users don't have to own the device to have an experience with it. Anyone can interact with it, wherever it is. At this point, surface computing is primarily used to transfer large amounts of multimedia data but it can also be used to transfer more traditional data. It seems to be an effective engagement vehicle because it allows for multiple users to interact with multiple pieces and forms of information. However, it is only a matter of
time before more complex programs are available for use that would help with effective acquisition, conversion, or retention tactics. If used correctly (with the right content, the right amount of content, and the right enabling devices), surface computing can be an extremely powerful tool.

What Options are Available?
Many companies have begun developing some type of surface computing. Some, like Microsoft, turn customized furniture (i.e., tabletops or bars) into interactive surfaces; while others, such as GesturTek, design their systems to work with pre-existing structures like walls and floors. While the following does not detail all of the surface computing solutions in market today, it does provide an overview of the major players.

* Microsoft Surface –

Microsoft Surface is arguably the best known surface computing solution in market today. Surface is a table-top only, multi-touch display that uses cameras (within the tables) and rear-
projection to provide interactivity through natural gestures, touch, and physical objects.

* Laser Touch (Microsoft) – Laser Touch is a low-cost solution that can transform any display (monitor, projector, etc.) into a touch screen. The biggest difference from Surface, aside from price, is Laser Touch's ability to be used on multiple displays, not just tables. Unfortunately, there are no plans to commercialize it.

* GestureTek –
GestureTek's solutions include interactive displays for any surface (tables, floors, and walls), as well as virtual gaming and interactive signage. GestureTek also uses its solutions for industry-based specialties (i.e., health and mobile), enough that it has created different divisions within the company for these two. It has enough solutions to offer a custom toolkit to potential clients, including components of its different solutions or whole solutions themselves.

* Perceptive Pixel -

Perceptive Pixel was founded by Jeffry Han, considered by many to be the revolutionary mind of multi-touch displays. Han has developed large-scale, multi-touch displays for corporations and the government, and he is also rumored to be the mind behind iPhone's multi-touch
display. Perceptive Pixel specializes in giant, wall-sized touch screens that support multiple inputs. These displays were used on CNN during the 2008 election season.

* Diamond Touch (Mitsubishi) -

Diamond Touch is a table-top only, multi-touch display that supports small group collaborations. Diamond Touch was specifically intended for in-office business use. Its unique technology uses antennas instead of cameras.

* Smart Table -

Smart Table is a table-top only, multi-touch display intended for child education.

* Catchyoo -

Cannyoo provides interactive solutions for floors, walls, and tables. Its solutions are designed for large system deployment and include worldwide network capabilities. These networks
are similar to comprehensive digital signage networks with features like content management, real-time Administration, and scheduling.

• Reactrix – Reactrix's solutions are more sophisticated than Catchyoo's, but almost identical. According to MediaWeek, as of October 2008, Reactrix is up for sale and is in discussions with potential buyers.

• Sensacell – Sensacell is an interactive floor system comprised of different "modules" that can form any shape of any size (up to thousands of square feet). Once the user is within six feet of the modules or steps on them, sensors identify the proximity/pressure and react by illuminating.
How Should I Choose?

Surface computing is one of the key emerging trends in human-computer interaction. It provides a new way to engage audiences in rich and meaningful ways across multiple environments. We will see commercially-available solutions increase over the next few years. Currently, the primary differences among companies are the depth and breadth of the solutions and cost. At this stage, partnerships are a viable solution for both provider and buyer (look no further than AT&T and Microsoft Surface). Before moving forward with a "surface"
provider, buyers should identify their goals and objectives. Factors like reach, network, type and frequency of use, and of course, cost should be considered.