Touch on the Desktop

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NextWindow
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Agenda

- About NextWindow
- Introduction
- Windows 7 & Touch
- Desktop Hardware & Applications
- Market Growth Factors
- How Optical Touch Works
- Touch Technology Comparison
About NextWindow

NextWindow

- Develops & manufactures **optical touchscreens**
- Currently focused on two touch-screen markets
  - Windows-7 consumer monitors and all-in-one computers
  - Large-format display applications such as interactive digital signage
- Global presence
  - New Zealand (HQ), Singapore (Ops), USA, Taiwan, Korea, Japan
  - Manufacturing in China, Thailand and Malaysia
  - 119 employees, 55 in engineering
- Brief history
  - 2000: Founded by CTO and private investors
  - 2003: First product to market (optical touch for large displays)
  - 2005: Entered USA market
  - 2006: First major volume contract signed (HP TouchSmart AiO)
  - 2008: Entered Taiwan market with ODM focus
  - 2009: Engaged with many PC OEMs & ODMs on Win-7 products
  - 2010: Acquired by SMART Technologies
Is This All There Is?

Is this all there is?

Is touch really all about **200M** mobile phones and everything else is mostly irrelevant?
No! Touch Is Spreading Everywhere

- Touch was everywhere at CES 2010
  - There seemed to be a built-in assumption that everything should be touch-enabled
Desktop Touch Before Windows 7

- Vertical-application monitors (1990s)
- HP TouchSmart AiO (2007-2009)

Source: Elo TouchSystems

Source: HP
The Significance of Windows 7

- **Windows 7 fully enables desktop touch (10/22/09)**
  - Touch & multi-touch is a highly visible characteristic of Win-7
    - Win-7 supports up to ~100 touch points
  - Touch API is easy for ISVs to use to touch-enable apps
    - Applications can define their own custom gestures
  - Most PC OEMs have launched multiple desktop touch products
    - ~90% AiOs, ~10% monitors
Consumer Desktop Hardware

- **AiOs & monitors with Win-7 touch**
  - 27 products from 13 OEMs
  - Acer, Asus, Dell, Fujitsu, Gateway, HP, Ilyama, Lenovo, Medion, MSI, NEC, Samsung, Sony

- **AiOs with single-touch**
  - Estimated at 15

- **AiOs with no touch**
  - Estimated at 25

- **Monitors with single-touch**
  - None
Desktop Applications

- Consumer software applications enhanced to take advantage of Windows-7 touch
  - Estimated at 50
    - Art & creativity, media management, reading, games, educational…
    - Mostly consumption-oriented
  - It will take until the end of 2010 or mid 2011 until there are a substantial number of applications available

- Enterprise vertical (e.g., CAD, GIS)
  - Beginning to see some specialized applications

- Enterprise horizontal (e.g., Office)
  - No significant applications yet
Market Growth Factors

- Touch on the desktop is best for **consuming** information rather than **creating** information
- Touch-enabled applications are slow to market
  - Consumers won’t buy touch-enabled hardware without compelling touch applications
- Microsoft’s support for multi-touch
  - Enhancements such as “No touch left behind” (in the latest Windows-7 SDK) may make a BIG difference for ISVs
- Incremental BOM cost for touch
  - Cost is much less of an issue in all-in-ones vs. monitors
- Ergonomic issues may be significant on the desktop
  - So-called “gorilla arm”
    - Reclining monitors? (palm rejection & viewing angle must change)
How Optical Touch Works

- Controller Electronics
- Optical Sensors
- Infrared LEDs
- LED reflecting directly into the optical sensor
- Retroreflectors
- Optical Sensor View
- Touch Point
- Glass Substrate

Optical Sensor Pixel Position

Light Intensity
# Desktop Touch Technology Comparison

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Thank You!

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NextWindow’s Optical Touch

Basic Elements

- Two CMOS linear image sensors with lenses
- Single IR light source in each optical sensor module
- Backlighting created by retro-reflective border
- Image sensors aligned for maximum return signal
- Digital signal processor (DSP)
- USB and serial interface
How It Works

- Optical system senses touches by looking across the substrate
- Optical sensors emit infrared light across the substrate
- Light is reflected back by retro-reflectors around the substrate
- Touch creates a shadow; the position is calculated by triangulation
- Zero contact pressure & no special coatings are required