Touch on the Consumer Desktop

Geoff Walker

NextWindow

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<begin>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: Majority market share of Win-7 desktop touchscreens

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Agenda

- Windows 7
- Desktop Hardware
- Desktop Software
- Forecasts
- Factor #1: Applications
- Factor #2: Ergonomics
- Factor #3: Cost
- Factor #4: Microsoft
- Prediction

Desktop Touch Before Win-7

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

Source: Elo TouchSystems

Source: HP

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Windows 7

- **Windows 7 enables desktop touch (10/22/09)**
  - Touch & multi-touch is a highly visible characteristic of Win-7
  - Touch API is easy for ISVs to use to touch-enable apps
  - Most PC OEMs are "testing the waters" with multiple products
    - ✓ 90% AiOs, 10% monitors
    - ✓ OEM touch forecasts are generally quite conservative
    - ✓ None of the OEMs has a clear vision of what will drive touch
  - Microsoft wins regardless of the outcome

Win-7 versus the iPhone

- **Comparison with the iPhone**
  - Touch is the iPhone's only user interface
    - Keyboard & mouse are the primary desktop user interface
  - The iPhone's "killer app" is its versatility & immersive UI (150,000+ apps with billions of downloads)
    - Windows 7 doesn't have a "killer touch app" yet…
- **Would Win-7 touch have been the same without the iPhone?**

Desktop Hardware (4/10)

- **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

Examples

HP

Medion

NEC

Sony

Dell

Lenovo

NextWindow shipped >750K units in the 12 months ending 3/10 to these and other PC OEMs

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Desktop Software (4/10)

- **Consumer software applications enhanced to take advantage of Win-7 touch**
  - Estimated at 50
  - Microsoft seems reluctant to publicize (or even release) a list
- **Categories**
  - Art & creativity, media management, reading, games, educational… mostly consumption-oriented
- **When will the number of touch-enhanced applications become "substantial"?**
  - Probably not before mid-2011

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Forecasts

- Touch penetration rate is the key measure
- Forecasts are all over the map

Source	Date	Category	2013 Penetration
DisplaySearch	6/09	Monitors & AiOs	3%
Morgan Stanley	6/09	Monitors & AiOs	22%
Credit Suisse	8/09	Monitors, AiOs & Notebooks	50%
DisplaySearch	6/09	Notebooks	4%
Morgan Stanley	6/09	Notebooks & Netbooks	20%

- 2010 total AiO forecasts range from 5-6M to 10-11M
- Some issues…
  - Combining monitors & AiOs obscures the forecast, since the penetration rates will be very different
  - There really aren't any reliable indicators – it's all guesswork!

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Factor #1: Applications

- **Applications are the key**
  - People don't spend time using Windows, they use applications
  - Consumers must see some application functionality that makes them want to spend money for touch
- **The current application outlook is uncertain**
  - Win-7's UI is poorly optimized for touch, which communicates a negative message to ISVs
  - Touch isn't the #1 OS feature that ISVs need to adapt to Win-7
  - Many ISVs need education on touch
    - ✓ Coding directly to the hardware may be required for high performance
  - Many ISVs are conservative
    - ✓ "We're waiting to see if there really is going to be demand for touch"
  - A surprising number of current applications don't work smoothly with touch

* See www.readyset7.com

Factor #2: Ergonomics

- **"Gorilla arm"**
  - *"The human arm isn't designed to be held horizontally away from the body for any length of time while making tiny, precise movements"* (Rupert Goodwins)
  - This may be the **elephant** in the room
    - ✓ **Reclining monitors & AiOs** will help, but that will require wider viewing-angle LCDs ($$)

- **Laptops may be more ergonomic for touch**
  - Smaller screens = less arm movement; elbow support on desk
  - BUT screen hinges are usually too weak for unsupported touch
- **Tablet PCs may be the most ergonomic of all**
  - Win-7 touch may inject some life into the dormant Tablet market

Factor #3: Cost

- **<u>Incremental cost for touch</u> as a percentage of the total device BOM is the key measure**
  - Using optical as an example at $2+ per inch in 2010
    - ✓ 22” Monitor: $145 → ~30%
    - ✓ 15” Laptop: $300 → ~10%
      - But projected capacitive is $4/inch = 20%!
    - ✓ 22” AiO: $400 → 11%
  - For a consumer to pay for touch in a **monitor**, the value proposition must be <u>very</u> compelling
  - In an **AiO**, it’s already approaching “no-brainer” level
    - ✓ HP launched their 3rd generation of TouchSmart at the end of 2009
    - ✓ One OEM with a $100 delta between touch & no-touch AiO versions is experiencing an ~80% attach rate on the touch version

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Factor #4: Microsoft

- **Touch in Windows 7**
  - Microsoft doesn’t market specific capabilities of a new OS at a detail level, so there has been very little promotion of touch by Microsoft
  - User-interface enhancements such as “No Touch Left Behind” could have a HUGE effect on ISVs’ desire to touch-enhance their applications

Prediction

Category	2010 Units			2011 Units		
	Market	Penetration	Touch	Market	Penetration	Touch
AiOs	10M	45%	4.4M	14M	60%	8.5M
Monitors	139M	1.0%	1.4M	142M	3.0%	4.3M
Notebooks	134M	4%	5.4M	162M	8%	13M

- **Assumptions**
  - Applications begin to fully support touch by mid-2011
  - Touchscreen cost-per-inch drops at typical PC hardware rates
  - AiOs sales exceed most forecasts
  - Touch on AiOs becomes a “no-brainer” due to the low cost-delta
  - Oversupply of capacitive touch for notebooks drives down cost
  - Monitors remain resistant until cost-per-inch drops significantly

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Thank You!

Geoff Walker
Marketing Evangelist & Industry Guru
NextWindow
7020 Koll Center Parkway, Suite 138
Pleasanton, CA 94566
1-925-272-4529
gwalker@nextwindow.com