

3M Touch Systems

3M MultiTouch

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Agenda



Multi-Touch Ecosystem

3M Multitouch Solution

Multitouch looking forward

Questions



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Multitouch Ecosystem



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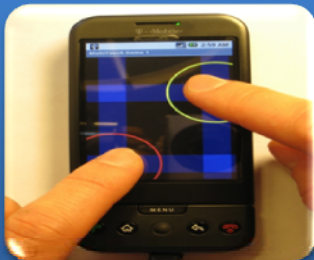


Touch Terminology



Single Touch

- One Touch detected and resolved.
- The system can detect that a touch occurred and precise location
- Single touch can perform actions such as tap, drag, flick, swipe



Dual Touch and Two-Touch

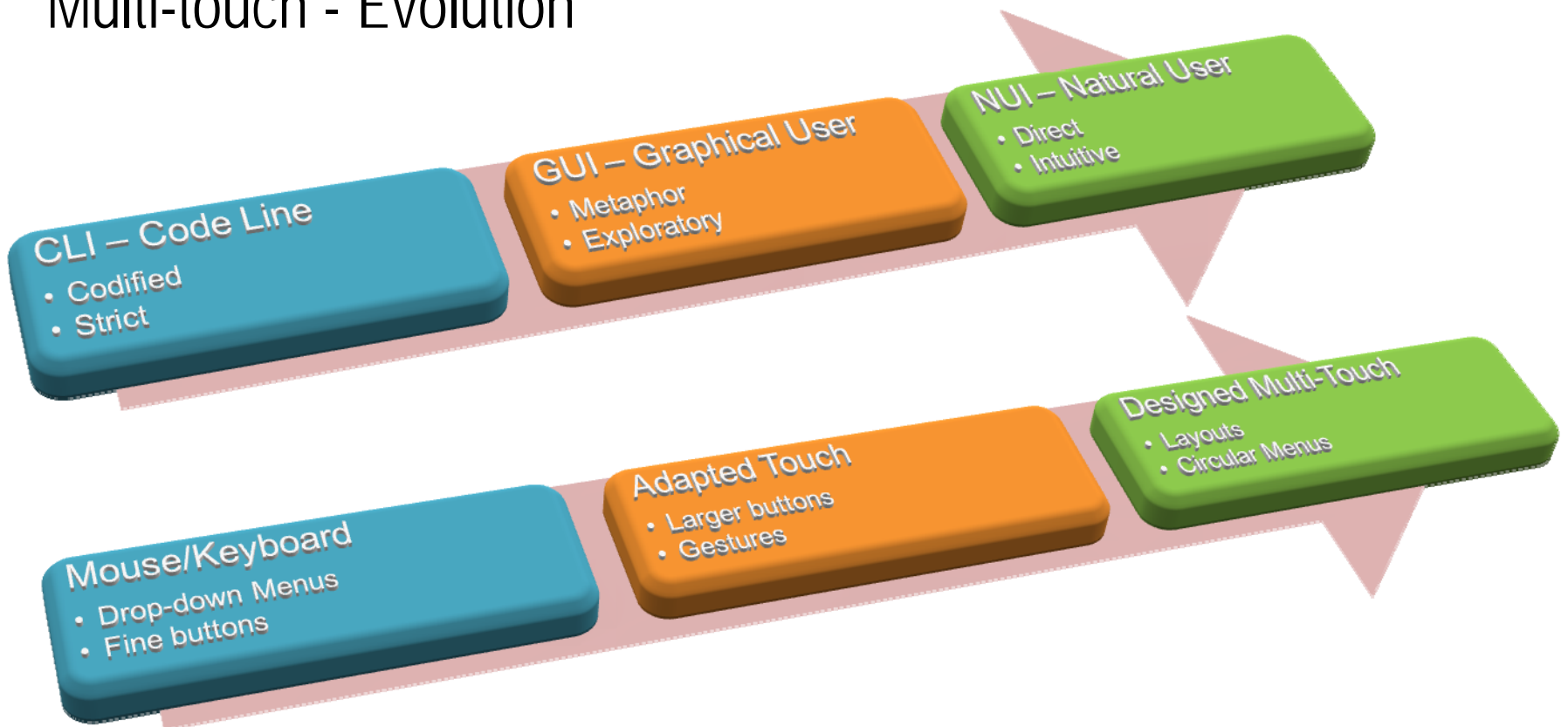
- Two touches independently detected and resolved
- Two touch can resolve 2 to independent draw lines on the screen
- Dual touch is limited to two finger gesture functionality



Multi-Touch

- 3 or more independently detected and resolved points
- Resolve N number of lines, points, gestures on the screen simultaneously
- Full multi-touch can support advanced gestures, support multiple users using multiple fingers

Multi-touch - Evolution



```

C:\WINDOWS\system32\cmd.exe
> /flushdns Purges the DNS Resolver cache.
> /registerdns Refreshes all DHCP leases and re-registers DNS names
> /displaydns Display the contents of the DNS Resolver Cache.
> /showclassid Displays all the dhcp class IDs allowed for adapter.
> /setclassid Modifies the dhcp class id.

The default is to display only the IP address, subnet mask and
default gateway for each adapter bound to TCP/IP.

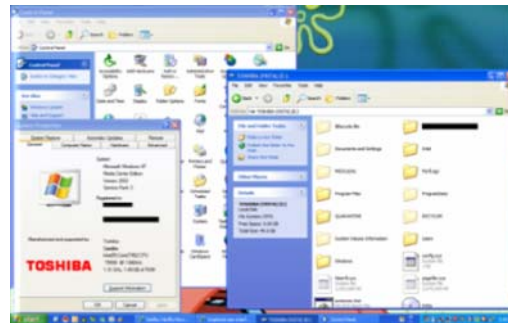
For Release and Renew, if no adapter name is specified, then the IP address
leases for all adapters bound to TCP/IP will be released or renewed.

For Setclassid, if no Classid is specified, then the Classid is removed.

Examples:
> ipconfig /all           ... Show information.
> ipconfig /all /v       ... Show detailed information
> ipconfig /renew        ... renew all adapters
> ipconfig /renew EL*    ... renew any connection that has its
                        ... name starting with EL
> ipconfig /release *Con* ... release all matching connections,
                        ... eg. "Local Area Connection 1" or
                        ... "Local Area Connection 2"

C:\Documents and Settings\ABEMEZ\

```



Ecosystem Partners



- **Hardware Manufacturers**
 - *Touch screen manufacturers (Includes competitors)*
 - *Display manufacturers (OEM, ODM, CM, Integrators)*
 - *PC manufacturer, GPU suppliers*

- **Software Suppliers**
 - *OS level*
 - *Application providers*
 - *Tool providers (SDK, middleware, bridge software)*
 - *Content providers*

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3M Projected Capacitive Technology



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3M Projected Capacitive Technology



- 3M Operation:
 - *Based on a mutual capacitance theory*
 - *Discrete row and columns*
 - *Drive and sense to determine touch location*
- 3M Electronics
 - *3M proprietary design*
 - *Significant touch bandwidth (60 touches)*
 - *Fast response time less than 6ms for 20 simultaneous touches*
 - *High sampling rate >120hz*
- 3M Sensor
 - *All glass 1st surface*
 - *Matrix design*
 - *Antiglare and Anti-stiction surface coating*

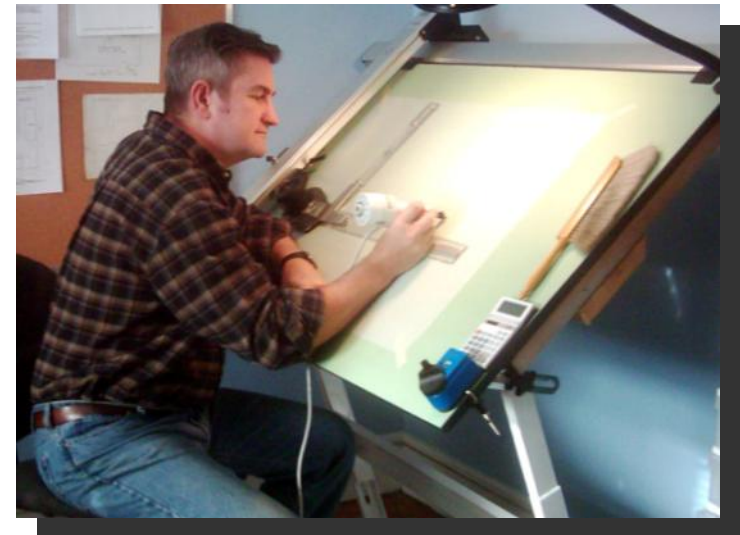
3M 20 Touch 6ms specification

- Why is 3M pushing the speed specification?
 - *Latency is the most easily perceived fault of a multi-touch touch system*
 - *Can occur at the touch screen, OS, application, driver*
 - *Can range from 2X to 4X+ the touch systems specified speed*
 - *Today we can only control the touch system/driver speed but customers/ISV/OEM must consider the impact of latency on the customer experience*



3M 20 Touch 6ms specification

- Why so many touch points?
 - *Typical multitouch use environments will have orientations that cause or create the need to deal with the palm effect*
 - *Create a more natural experience*
- The 3M PCT M2256PW deals with palms, arms and elbows by accommodating them
 - *A typical palm can consume 4-6 touch points.*
 - *A hand can consume 10 touch points.*
 - *Specified at 20 touches but can output as many as 60*
- Why report touch from palm/arm events?
 - *Provides flexibility for application developers*
 - *Additional information allows application decisions to enhance the user experience*



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3M™ Display M2256PW Overview



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3M™ Display M2256PW Display Specification

■ 22" Display Size

- *PMVA LCD panel*
 - 178 x 178 degree viewing angle
 - 300 NIT Light output cd/m²
 - 1000:1 Contrast Ratio
 - HD resolution 1680 x 1050
 - DVI and VGA input
 - Multimedia
- *Desktop base*
 - Stable under multitouch
 - Wide range of adjustment
 - Cable management
- *Window 7 Certified Display*
 - Windows 7 Display Logo
 - Windows 7 AQ windows touch
 - HDCP Compliant



M2256PW Touch Specification – Against Application Needs

Multi-Finger	<ul style="list-style-type: none">• 20 finger touch support at less than 6 ms
Multi-User	<ul style="list-style-type: none">• Up to 60 max touch points reported
Palm Accommodation	<ul style="list-style-type: none">• High touch output provides application flexibility
Responsiveness	<ul style="list-style-type: none">• Higher than 120 Hz sampling rate
Accuracy	<ul style="list-style-type: none">• Greater than 99% accuracy on entire screen
Viewing Angle	<ul style="list-style-type: none">• 178 degree horizontal and vertical viewing angle
Low Surface Energy	<ul style="list-style-type: none">• Smooth anti-glare –anti-stiction surface



- 22" Display
- High Contrast
- Wide viewing
- 20 Plus MT

Parting thoughts on what we might expect



- Larger multi-touch surfaces, smaller multi-touch surfaces, more multi-touch surfaces
- Increased collaborative applications
 - *Larger applications, tiled display applications, tele-presence, etc*
- More intuitive, rich experiences
 - *Increased number of touches*
 - *Additional touchscreen output data*
 - *Palm, size, shape, proximity, strength/pressure, 3D, additional sensing capabilities*
- Better tools and coordination across the ecosystem
- Product and technology stratification and rationalization
 - *Better products than yesterday and today*
 - *New products/technologies*
 - *Niche products, broad spectrum products and mass market products*

Thank You www.3M.com/multitouch

